

NOV 9 500 117
NOVEMBER, 1950

Commercial Refrigeration

AND AIR CONDITIONING

**DON'T LET THIS HAPPEN
TO YOU!**



**THIS ISSUE SHOWS HOW TO
RUN YOUR BUSINESS AT A PROFIT**

**MERCHANDISING, SELLING, INSTALLATION AND MAINTENANCE OF
COMMERCIAL REFRIGERATION AND AIR CONDITIONING EQUIPMENT**

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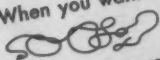
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when you're in need
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NOVEMBER, 1950

VOLUME 7, NO. 11

Commercial Refrigeration

AND AIR CONDITIONING

Established 1944 as
THE REFRIGERATION INDUSTRY

THIS MAGAZINE has no
official affiliation with ANY
group, society or association.

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THE COVER . . . Signs like this have appeared on the doors of many a firm whose owner didn't have the necessary business know-how to run his operation profitably. This issue and the December one are being entirely devoted to sound and practical information aimed at making every refrigeration man a better businessman.

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Published monthly by REFRIGERATION PUBLICATIONS, INC., an affiliate of INDUSTRIAL PUBLISHING CO., publishers of APPLIED HYDRAULICS, DIE CASTINGS, FLOW, INDUSTRY & WELDING, OCCUPATIONAL HAZARDS, and THE TAXICAB INDUSTRY. Member, Controlled Circulation Audit, Inc., and National Business Papers Association. Not responsible for unsolicited editorial material.

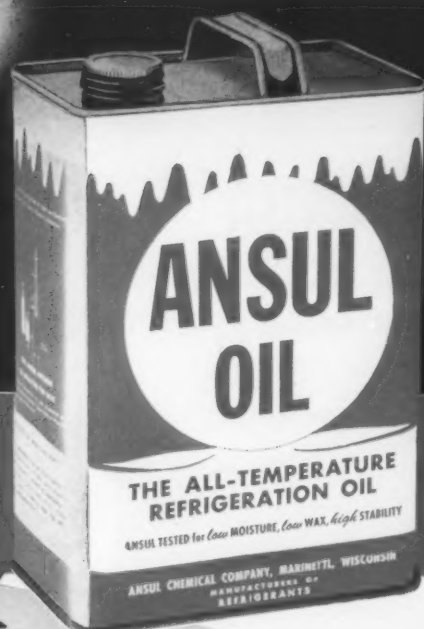
Subscription rates: United States and possessions—\$3.00 per year, \$5.00 for 2 years; Canada—\$4.00 per year, \$6.00 for 2 years; Foreign—\$5.00 per year. Single copy price, 30 cents. All subscriptions subject to individual acceptance by the publisher.

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APPROVED

... HERE ARE A
Dozen REASONS *Why!*

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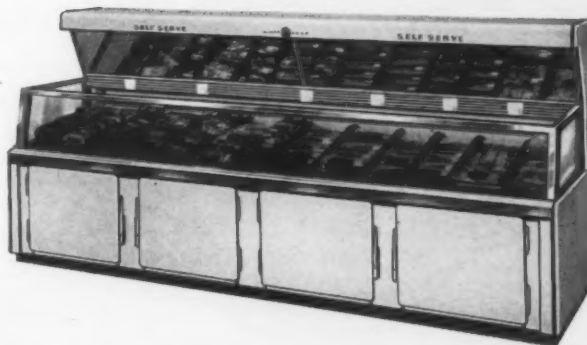
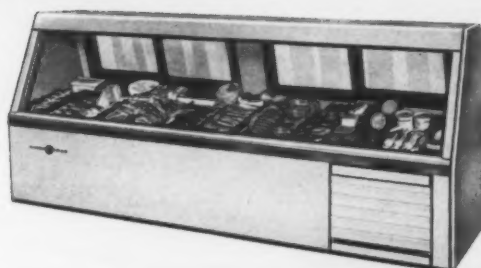
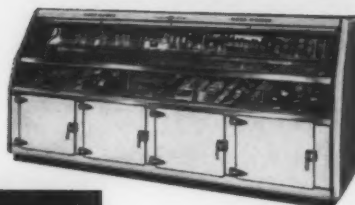
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For Smooth, Quiet, Dependable Power



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Century capacitor start, induction run, single phase motors have the necessary high starting torque which makes them ideal for refrigeration compressors, air compressors, stokers, conveyors, blowers, fans, machine tools, jet pumps, etc.

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ALL STYLES NOW AVAILABLE



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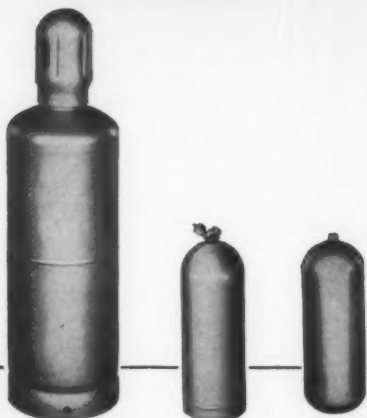


DOUBLE

Before you buy your next cold storage doors, be sure you have full information on the Series "50". Write for Catalog.

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SPECIFY
Prest-O-Lite
 Trade-Mark
CYLINDERS



PREST-O-LITE cold-drawn cylinders for refrigerant gases are available in 5-lb. (rounded bottom or with foot ring), 10-lb., 25-lb., and 35-lb. sizes. You can have 50-lb., 100-lb., 150-lb., or special sizes and designs quickly made to your specifications.

You save money in the long run when you insist on the best cylinders. Fill in the coupon below and mail it today for more information about PREST-O-LITE cylinders that will meet your needs.

For Refrigerant Gases Because You Get...

- ① **Uniform Wall Thickness**—Unusually close tolerances in wall thickness assure you a superior cylinder.
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Please send literature and full information about PREST-O-LITE cylinders for refrigerant gases.

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ADDRESS

**MAIL THIS
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 NOW!**

LETTERS

More Comment On "Gray Meat" Problem

EDITOR:

Frankly, we feel we can contribute little to the solution of the "gray meat" problem outlined in the Letters column of your October issue. Our experience with Fleetwood cases has been limited to their use in exhibits which we have sponsored in the Wilkes-Barre, Pa. area. At that time we did have a very satisfactory performance from the cases.

In my own personal experience in the retail field, I have found three causes of "graying meat" in a display case:

1. Excessive light rays
2. Excessive moisture condensation from the meat platters which causes a change in the hemoglobin
3. Cases.

Apparently, Mr. Hendrickson has eliminated the first two by statements in his problem: "The valve and both coils are active" and . . . "The lights have been turned out."

By the term gases, I do not necessarily mean escaping Freon (this would evidently indicate a solution by reducing the pressure and causing the machine to stop). However, is the meat case located somewhere near outlets for air conditioning units, boiler or heating units where natural gas, oil or other escaping combustion gases could be pulled into the case by its own blower cooling system?

I recall an incident where this being eliminated, a similar problem was cleared up. In this dealer's case, it might be worth checking."—Vern Olmstead, Merchandising Dept., Armour and Co., Chicago, Ill.

* * *

EDITOR:

In reference to G. Hendrickson's troubles on meat turning gray, he will find that his trouble is circulation.

We have run across the same problem and have corrected it by forcing circulation by fan, or changing the layout of coils, or by cutting down the amount of tubing by moving the expansion valve bulb over two tubes.

Here's to a bigger and better paper.—N. Simon, Simon's Refrigeration Equipment Co., New York City.

* * *

Reader Reports On Midget Canadian Unit

EDITOR:

Looking through my September issue of COMMERCIAL REFRIGERATION and letters to the editor, especially that of Mr. Ernest J. Tartler of Chicago, I am enclosing a folder of a baby refrigerator 1½ cu. ft.

I got back from Toronto, Canada recently where these little refrigerators were

Continued on page 71

IT'S ALWAYS AN OPEN AND SHUT CASE WHERE

Bridgeport

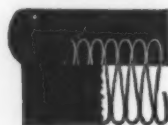
INNER-SEAL

IS INVOLVED

Preferred by the leaders* of every field where weatherstripping is vital

When the issue involves the positive exclusion of dust, dirt, dampness, heat or cold, there can be but one decision—Bridgeport Inner-seal Weatherstripping. For protecting vital equipment on locomotives, maintaining optimum hold conditions on refrigerated ships or sealing passenger comfort into planes, busses and railroad cars, Bridgeport Inner-seal has no equal. Its unique design and rugged construction make it easier to install, positive in sealing and extremely long lived, even when exposed to the toughest treatment. Consisting of a live sponge rubber bead molded for life onto a flexible flange woven of spring steel wire and strong cotton thread, Inner-seal can be fitted, by any careful workman, into tight corners or around compound curves to provide a perfect seal. Standard Inner-seal is latex-dipped, but for installations exposed to the ravages of oil, grease, sunlight, salt water or extreme temperature variations, it may be coated with durable neoprene.

*We'll gladly furnish names on request.



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reflects in its leadership in
every field it serves

**your
symbols
of
safety**



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Safety is built into each valve
and accessory—plus rugged depend-
ability and rigorous testing and in-
spection. This combination is one of the
reasons why outstanding names such as Shell
and Esso accept and use Superior products. You,
too, will want to learn about the Superior safety
features—write today for your copy of our Catalog.

Superior valve and fittings co.

Pittsburgh 26, Pennsylvania



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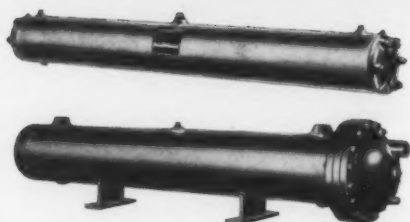
NIBCO

WROT FITTINGS

B & G 1522 *Challenges Comparison*

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The B & G 1522 is really a pump you can lean on! For complete information, send for Catalog CY-350.



Hydro-Flo REFRIGERATION EQUIPMENT

BELL & GOSSETT COMPANY

Dept. BU-45, Morton Grove, Illinois

Canadian Licensee: S. A. Armstrong, Ltd., 1400 O'Connor Road, Toronto, Canada

*Reg. U. S. Pat. Off.

and AIR CONDITIONING • NOVEMBER, 1950

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TO SAVE YOU:

1. SERVICE TIME
2. FREIGHT COSTS



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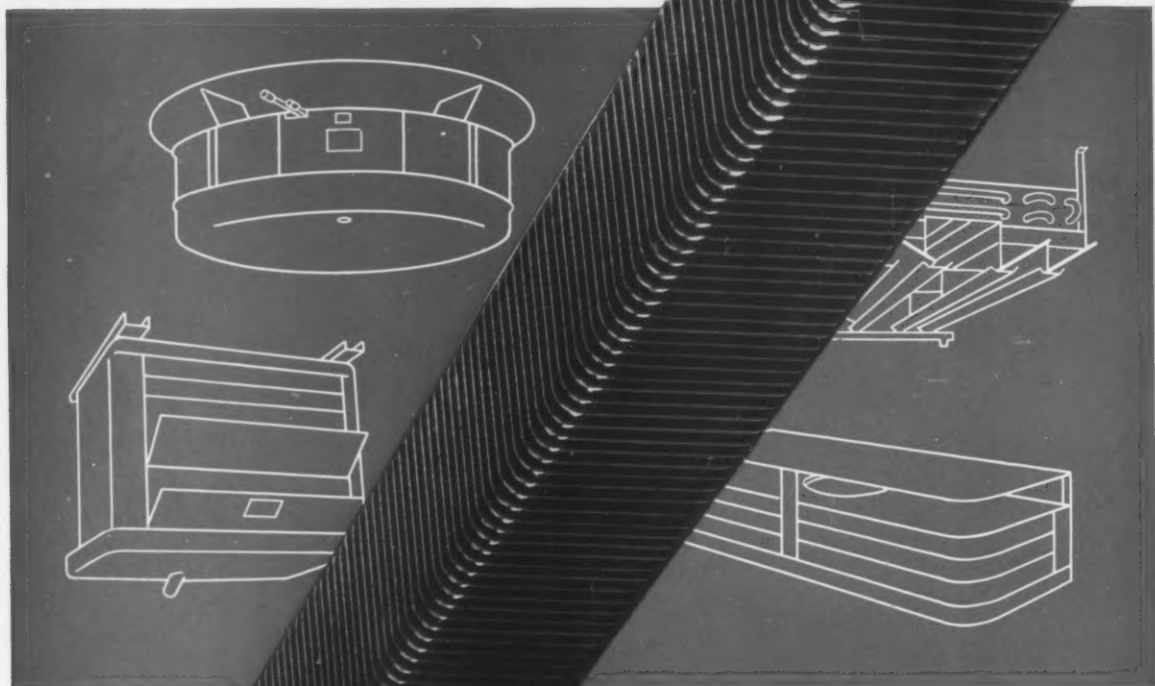
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the Best is Bush*

BUSH
HEAT TRANSFER PRODUCTS

NOVEMBER, 1950 • COMMERCIAL REFRIGERATION

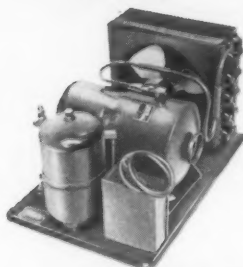
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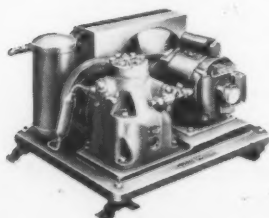
Condensing Units and Renewal Parts

INCREASE YOUR BUSINESS

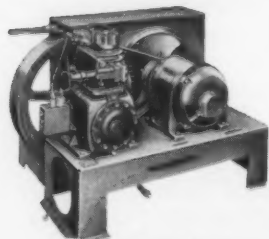
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3 great lines*



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1/6 to 1/2 HP



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Leading refrigeration supply jobbers at over 75 locations throughout the U. S. are authorized wholesalers of G-E Condensing Units and Renewal Parts. Your nearest G-E authorized wholesaler stands ready to handle all your on-the-spot requirements—giving you the fast, efficient “over the counter” service you require.

**OVER 1,000,000 GENERAL ELECTRIC
CONDENSING UNITS IN OPERATION TO DATE!**

There are many G-E Condensing Units in constant use right in *your* community. Now that you can get genuine G-E replacement parts so easily, why not take advantage of this profitable opportunity to serve your customers?

SELL COMPLETE G-E CONDENSING UNITS TOO!

Many of your customers will greatly benefit by installing efficient, new G-E Condensing Units to modernize and expand their refrigeration facilities. You can build worthwhile business by taking care of these needs.

mail this coupon today!

**General Electric Company, Section CR13,
Air Conditioning Department, Bloomfield, N. J.**

Please send me the following literature:

- ☐ Hermetics Specifications Sheet PM50-0311
- ☐ Condensed Catalog—Open Type Units SP-51-1206A
- ☐ Renewal Parts Catalog SP-40-1164B

I am a service engineer ☐ dealer ☐
manufacturer ☐ contractor ☐

NAME.....

COMPANY.....

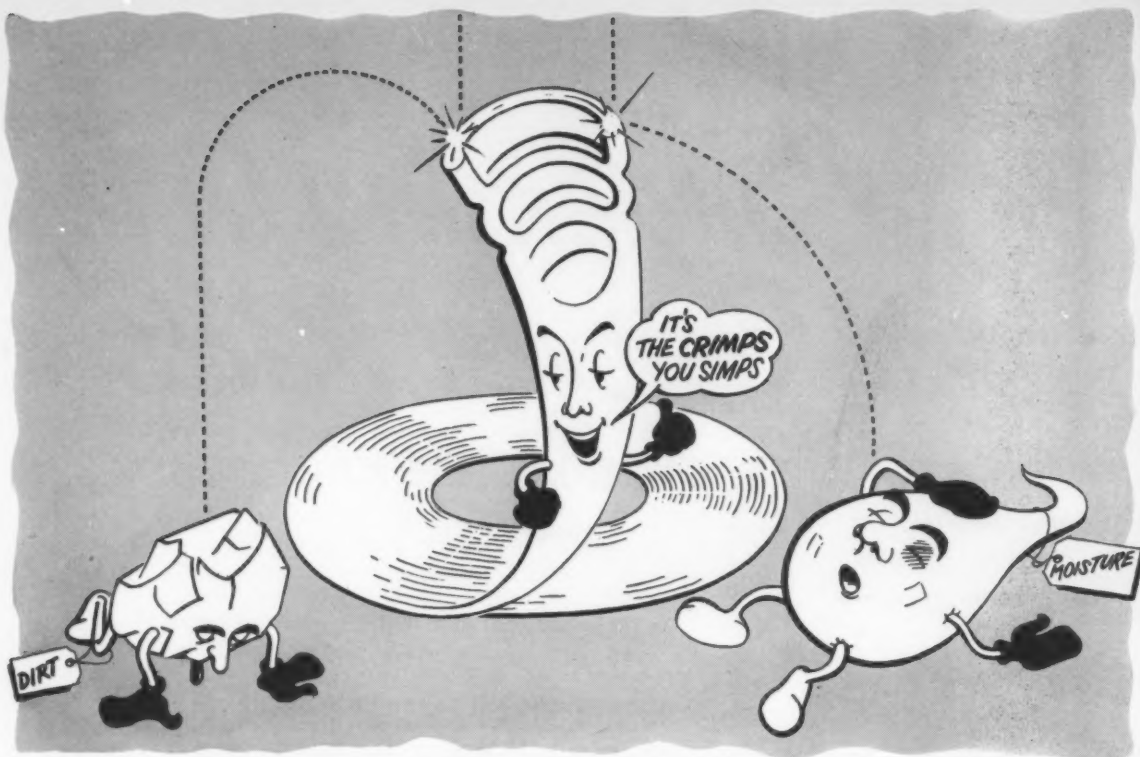
ADDRESS.....

CITY.....ZONE.....STATE.....

FREE!

Data on
G-E sealed and
open units

GENERAL  **ELECTRIC**



These Pests haven't a chance of getting into..

REVERE

DRYSEAL

refrigeration tube

●Dryseal gives dirt and moisture the bounce at the factory. A special, precise, mechanical double-crimp seal is made at each end of the tube when it is manufactured. This means Dryseal is delivered to you bone-dry and free from dirt. The seal is made in such a way that the diameter of the tube does not change, which permits Dryseal to be passed through any opening large enough for the tube itself.

While Dryseal may be stubborn about keeping out

dirt and moisture it's a soft touch when it comes to bending. The soft temper of the copper used in Dryseal allows you to make the most intricate bends by hand. And its ductility and soft temper make it extremely easy to flare for compression fittings without danger of splitting. Economical tube sizes range from $\frac{1}{8}$ " to $\frac{3}{4}$ " O.D.

And, for your greater convenience we have just recently brought out Dryseal in a nifty-50 one-coil carton. This carton, which has been attractively designed for easy identification in stock, contains one 50-foot coil of Dryseal . . . is easier to handle, light weight, economical.



REVERE

COPPER AND BRASS INCORPORATED

Founded by Paul Revere in 1801

230 Park Avenue, New York 17, New York

Mills: Baltimore, Md.; Chicago and Clinton, Ill.; Detroit, Mich.; Los Angeles and Riverside, Calif.; New Bedford, Mass.; Rome, N. Y. Sales Offices in Principal Cities, Distributors Everywhere.

What the serviceman should know about VIRGINIA REFRIGERATION products

To Charge a System,
Use Refrigerants
That Are
Consistently Pure,
Consistently Sure...



"EXTRA DRY ESOTOO" (B. P. +14°F.)

"Extra Dry" is the refrigeration grade SO_2 that service and maintenance engineers have endorsed for more than 20 years. Comes in all popular cylinder sizes.

"V-METH-L" (B. P. -10.7°F.)

Virginia Methyl Chloride is made specifically for refrigeration use. Low moisture content, low acidity and narrow boiling range recommend "V-Meth-L" for the most exacting requirements.

"FREON" REFRIGERANTS

"FREON-11"

"Boiling Point"
74.7°F.

"FREON-12"

"Boiling Point"
-21.6°F.

"FREON-22"

"Boiling Point"
-41.4°F.

"FREON-113"

"Boiling Point"
117.6°F.

"FREON-114"

"Boiling Point"
38.0°F.

Virginia Smelting Company is distributor
for Kinetic's "Freon" Refrigerants.

HOW TO APPLY INSULATION AND SOUND-PROOFING MATERIALS

For quick reconditioning jobs on insulated cabinets, cold rooms, or ducts—whether it's a small repair job or a whole installation—try Enamelite, the

asphaltic mastic that doesn't have to be heated. Enamelite is equally effective on cork board, Fiberglas, Styrofoam, Celotex. In fact, it sticks to any dry surface and makes an excellent vapor seal. Easy to use. Mix the liquid and powder in the proportions marked on the label, then spread it or spot it on the insulation.



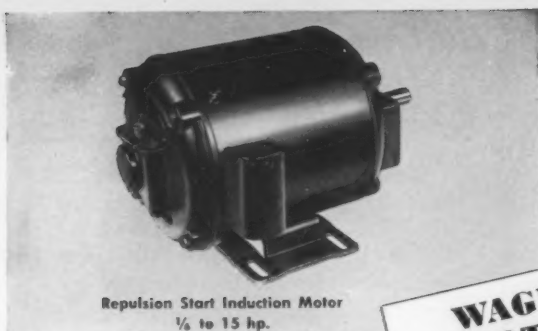
ASK YOUR WHOLESALER OR WRITE

VIRGINIA SMELTING COMPANY

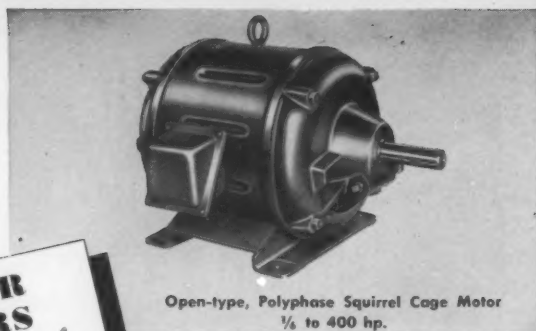
WEST NORFOLK

PHILADELPHIA • NEW YORK • BOSTON
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VIRGINIA
Refrigerants



Repulsion Start Induction Motor
1/8 to 15 hp.



Open-type, Polyphase Squirrel Cage Motor
1/8 to 400 hp.

**WAGNER
MOTORS**
*...The choice of leaders
in industry*



Explosion-Proof Motor
1/2 to 200 hp.



Totally-enclosed, Fan Cooled Motor
1 1/2 to 200 hp.

When You *Standardize* on Wagner Motors . . . You Standardize on *Quality!*

Give an added selling point to your product by standardizing on Wagner Motors. Their high quality and steadfast dependability have made them the first choice of many manufacturers and industrial plants. If you need motors that will give troublefree service and build customer satisfaction choose Wagner Motors.

Regardless of what your motor requirements may be, Wagner can furnish a standard motor to fit your needs. Twenty-nine branch offices, located in principal cities, are ready to help you. Write for Bulletin MU-185 for information on the complete line of Wagner Motors.

*You'll Save
Time,
Money,
Worry.
Because:*

- Wagner Motors are immediately available from Wagner Branches in principal cities.
- Improved engineering features assure long life and efficient operation.
- Wagner Motors are backed by a liberal warranty.
- They are available in a wide range of types and sizes for every application.
- More than 450 Wagner Authorized Service Stations and Parts Distributors plus 25 Wagner-owned Service Branches provide on-the-spot service, genuine repair parts, or replacement motors.

Wagner
Electric Corporation

EST. **WE** 1891

WAGNER ELECTRIC CORPORATION
6442 Plymouth Ave., St. Louis 14, Mo., U.S.A.

ELECTRIC MOTORS • TRANSFORMERS • INDUSTRIAL BRAKES
AUTOMOTIVE BRAKE SYSTEMS — AIR AND HYDRAULIC

BRANCHES IN 29 PRINCIPAL CITIES

BRUNNER
SINCE 1906

REFRIGERATION helps you serve better

**TO
COMMERCIAL
REFRIGERATION
READERS**

This is the type of advertising Brunner directs to refrigeration buyers. It is *producing business*. If you are not handling Brunner, write us. A factory representative will call on you. No obligation.

**For Refrigeration Economy and Efficiency
Standardize on BRUNNER**

Cut servicing costs. Simplify your problems of selection, installation, maintenance and replacements. Standardize on Brunner Refrigeration Condensing Units.

40 sizes and types from 1/4 hp to 75 hp make available the exactly right unit for every case, walk-in, storage or air conditioning application.

Cost-conscious operators right across the country have long *preferred* Brunner's because the records proved their dependable efficiency and long service life.

Too, Brunner dealers are everywhere—as close as your telephone—and they understand your problems and how to release you from them.

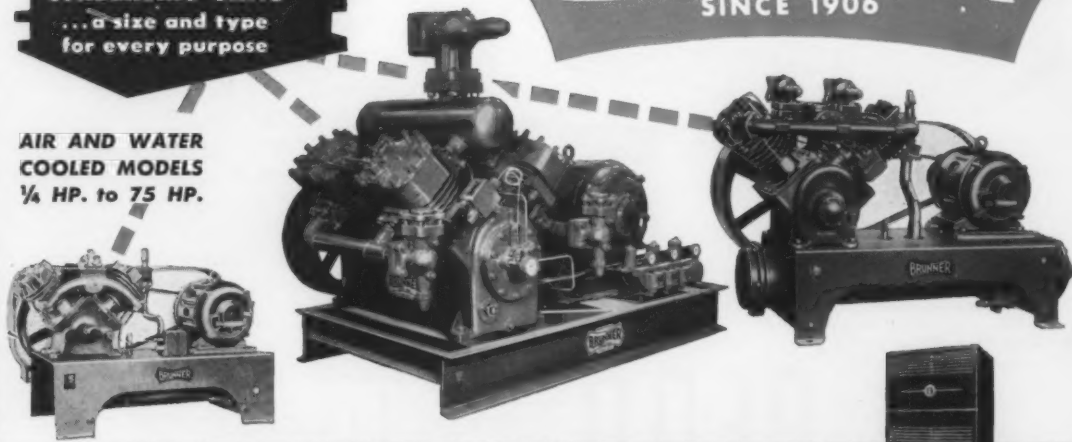
BRUNNER MANUFACTURING CO., Utica 1, N.Y., U.S.A.

● We would like to put you in touch with the Brunner representative nearest you. Talk refrigeration with him. You'll find him most helpful. No obligation in dropping us a line.

**REFRIGERATION
CONDENSING UNITS**

...a size and type
for every purpose

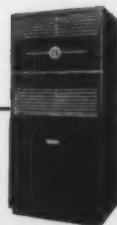
**AIR AND WATER
COOLED MODELS
1/4 HP. to 75 HP.**



BRUNNER
SINCE 1906

AIR CONDITIONING

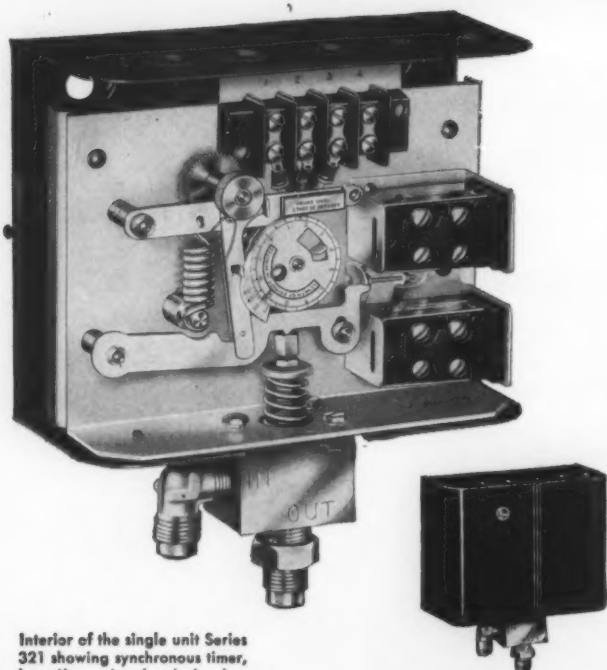
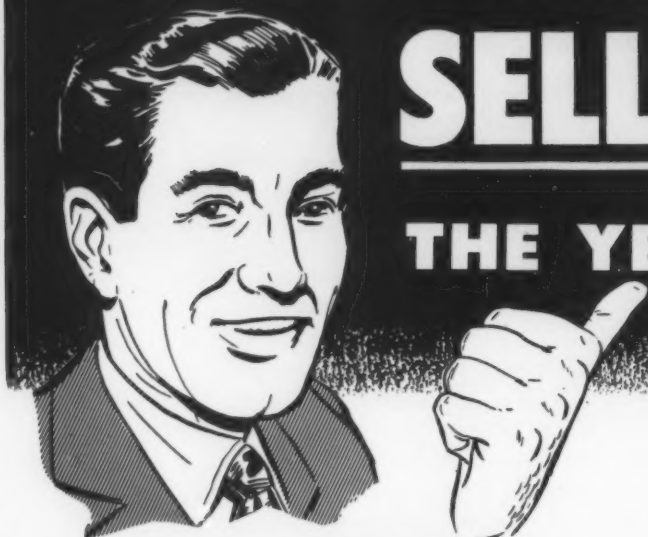
Self Contained Units in 4 sizes: 3 - 5 - 7½ and 10 HP.
Remote Installation Types from 5 to 75 HP.



AUTOMATIC HOT GAS DEFROSTING

SELLS FAST

THE YEAR 'ROUND

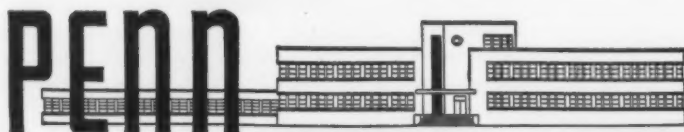


Interior of the single unit Series 321 showing synchronous timer, heavily spring-loaded valve, two-pole snap-acting contact structures and ease of wiring.

PENN's Series 321 Hot Gas Defroster is a "natural" for every food market. There's never been anything like it. It keeps evaporator coils frost-free . . . and does it *automatically*! It's wanted by refrigeration users everywhere because it keeps systems at peak efficiency . . . saves time . . . saves trouble . . . saves food . . . protects profits.

Evaporator coil defrosting . . . with Series 321 . . . is fast and positive. At regular intervals, hot gases are pumped directly from the compressor through the evaporator coil. It eliminates objectionable rise in product temperature. And cost of installation and operation is low!

You get new profit opportunities with the Series 321 Hot Gas Defroster in a large untapped market. It's easy to install on frozen food cabinets, meat cases, etc., either blast coil or gravity jobs. Learn more about it . . . ask your wholesaler or write **Penn Electric Switch Co., Goshen, Indiana**. Export Division: 13 E. 40th Street, New York 16, U.S.A. In Canada: Penn Controls, Ltd., Toronto, Ont.



AUTOMATIC CONTROLS

FOR HEATING, REFRIGERATION, AIR CONDITIONING, PUMPS, AIR COMPRESSORS, ENGINES, GAS RANGES



SOCIAL SECURITY REGULATIONS now apparently cover wholesale salesmen and manufacturers' representatives, as the result of recently enacted legislation. Whether interpretation of the new regulation's term "full-time traveling or city salesmen, other than house-to-house salesmen" will extend beyond these groups is not yet clear. The regulation further describes the salesmen covered as "taking orders from retailers, hotels, wholesalers, jobbers, and contractors."

800,000 HOME FREEZER OWNERS are locker plant customers, according to the Dept. of Agriculture's 1950 locker plant survey. This means that 40% of the users of the estimated 2 million home freezers now in operation are availing themselves of locker plant services. Whoever said the home freezer was a threat to the locker industry?

THERMAL CONDUCTIVITY OF SOILS is so greatly affected by the density of each specific soil that designers of heat pump installations should pay more attention to the natural density of the undisturbed earth, scientists report. Apparently, they reveal, the tendency is to pack soil in test apparatus to much greater densities than are found naturally, thereby creating a far greater conductivity than would be encountered in an actual installation. Moisture content and temperature of the soil are also influencing factors, but to a lesser degree than density.

FREEZING IMPROVES THE TENDERNESS of beef, pork, and lamb, according to the results of studies made by the Dept. of Agriculture. Temperature of freezing and number of days aged determine the tenderness effect. Refreezing of beef resulted in additional tendering, it was discovered, but the tendering effect found in freshly frozen samples was lost over long-time storage.

EXPANSION FITTING IN MANUFACTURING, involving the use of low temperature to shrink the male element before inserting it into the female element and allowing it to expand, has certain definite advantages over the older process of shrink fitting in which the female part is heated and then allowed to contract. These advantages include freedom from oxidation "scale" and subsequent cleaning or machining, lack of distortion, and the fact that cold treated parts are easier to handle with less accidents.

FROZEN ORANGE JUICE IS GAINING by leaps and bounds on its fresh and canned counterparts, according to a report by the Dept. of Agriculture. Purchases of the frozen concentrate, which a year ago accounted for only 5% of total orange and orange product purchases for home consumption, now account for a whopping 19%.

IF MOST REFRIGERATION MEN knew as much about business as they do about refrigeration, they'd have a comparatively easy time running their businesses at a profit. But, unfortunately, they don't—and that's why we've planned our November and December issues around articles dealing with such "business" subjects as credits, financing, display, merchandising, sales direction—all of them functions that go to make up a successful business operation. You'll find these issues packed with information you can put to work—now—to increase your business efficiency, and your profits.

WHERE DO YOU FIT IN THE COOLING FIELD?

THE selling of commercial refrigeration and air conditioning equipment, like the selling of practically any other type of commodity, can be divided roughly into three different levels or phases of merchandising activity, believes E. A. Anderson, general sales manager of Conditionaire, Inc., cooling and heating contractor in Peoria, Ill.

Anderson outlines these three phases of the business as follows:

(1) The selling of high-demand merchandise of medium price, with fairly rapid turnover and moderate profit.

(2) The selling and installing of higher priced specialty or engineered types of jobs, with a definitely slower turnover but a correspondingly higher profit per unit.

(3) The merchandising of equipment in the lower price brackets, where the relatively close margin of profit makes quick and positive turnover a "must".

In Anderson's opinion it is important for every man engaged in the commercial cooling field to critically appraise his own inclination, temperament, ability, and experience in order to determine on which of these three levels he can operate most effectively.

Merchandising vs. Engineering

The "middle of the road" course of merchandising outlined in Point No. 1 is undeniably the most popular of all. Consequently that is where competition is the keenest. In this field it is extremely important for the dealer to analyze his market carefully to determine just what types of

equipment he should handle in order to secure the greatest possible turnover at the highest possible profit. Naturally, the faster he turns this merchandise over the more he will lower his stock investment, and the more he will profit accordingly.

But suppose your training or tendency inclines you more toward the larger engineered types of installations, what then? This field of course requires more specialized technical knowledge and abilities. Sales are fewer, but each one carries a bigger price ticket and (if the pricing has been done intelligently) affords a larger profit per job to compensate for the slower turnover of equipment.

A Tip on Market Analysis

On the other end of the scale is the low-price, high-volume type of operation, where competition again is keen and the unit profit so small that an exceptionally large volume of sales and rapid turnover of merchandise must be maintained if the operation is to be kept "in the black". Here the overall profit depends upon the ability to buy in volume, sell almost as rapidly, and streamline installation procedures so that a minimum of time is consumed.

In analyzing the ultimate market potential of his own community or area, Anderson points out, it would be well for each dealer or contractor to consider the fact that the market of either the second or third groups might possibly become fairly well saturated in time, but that the market of the first group—the high-demand merchandise of medium price—is most apt to continue at a stable level.

The human element, the "you" factor, necessarily must play an important part in any dealer's decision as to the branch of the business in which he wishes to concentrate, Anderson emphasizes.

Consider the "You" Factor

Do you love the pressure and push hat goes with a big volume operation, such as the low price field in commercial refrigeration, window units in the air conditioning field, or domestic heating? Can you organize and promote this type of work and be sure you will come out with a profit in the end?

Or do you feel you are better equipped for handling the larger types of installations which require a considerable amount of engineering and which take a lot more time to sell, but net a much greater margin of profit on each job?

Or perhaps you think you can do your best work as a merchandiser of equipment in the middle-price bracket, where you can secure a substantial volume and come up with a reasonable profit from each sale?

All of which leads up to an obvious question, "Why not play all three fields?"

The answer to this is that some dealers and contractors do just that. but it's a pretty big bite to chew, and you'd better be mighty sure that you or your organization is fully equipped to handle all three types of business before you take the plunge.

In the case of such a combined operation, the basic philosophy previously expressed still holds good.

Continued on page 45



SUNISO ENDS STUCK VALVES

**Trouble of Long Duration Quickly Ends When
Compressor Is Charged with Suniso**

For years a dairy had been handicapped by poor refrigeration. Compressor valves clogged, and required frequent cleaning—even replacements. One time, due to neglect of this condition, the compressor stuck, burning out the motor.

On another occasion the tubing completely stopped up, threatening the loss of the day's production. This meant another emergency call for the serviceman. But it proved to be the last one. He managed to

get the tubing cleaned by means of heat and carbon tetrachloride. Then he charged the compressor with Suniso Oil of the grade recommended for that kind of unit.

There has not been the least valve trouble since. In addition to solving a problem for the dairy, Suniso saved money for the service organization, for the account was on a contract basis.

Experiences like this explain why Suniso Oils are the predomi-

nant choice of original equipment manufacturers and servicemen throughout the refrigeration and air-conditioning field. Suniso Oils, available in six grades, have extremely low pour points, low wax separation points, and high dielectric strength. They offer unusual resistance to chemical change when mixed with Freon or other modern refrigerants. For a handy tool-kit card, showing Suniso recommendations for all types of compressors, write Department RI-11.

SUN OIL COMPANY • Philadelphia 3, Pa.

*In Canada: Sun Oil Company, Ltd.
Toronto and Montreal*

SUNISO REFRIGERATION OILS
"JOB PROVED" THROUGHOUT THE INDUSTRY



“FINANCE ^{your} YOU

“T IS to every commercial refrigeration dealer's best advantage to handle his own time payment paper” flatly declares Joe Harding, owner of Inter State Sales Co., Joplin, Mo. Harding has been in the commercial refrigeration business since 1935, and has learned his lessons on installment selling the hard way.

“I recall one of my first experiences,” he relates, “when a finance company was handling my paper. One of my accounts was fined \$16 for being delinquent on two payments. The account never got over it. And it was a long time before I sold them anything else!”

Didn't the account take an unfair attitude? After all, wasn't the finance company, not the dealer, responsible for this difficulty? These are questions which immediately arise on hearing this incident related.

“The account was justified in being provoked,” Harding points out. “It was I who steered them into the deal. But it taught me a lesson. Immediately after this unpleasant episode I began to set up a cash reserve that would enable me to handle my own paper. Never once have I regretted the decision.”

Today Harding can take his paper to his bank and they never look at the signature nor question it. Harding is, with his cash reserve, reliable and responsible. And that's all the bank asks.

To build up his cash reserve, Harding deposits in this special account an amount equal to 10% of the balance due (which means 10% of the amount of the note) on each transaction. When he first inaugurated this policy he used to set aside even more than 10% of the balance due on each note

in order to build up this special reserve fund more quickly.

“Now,” explains Harding, “no matter how much paper I handle a month, the payments coming in offset it. My reserve always remains sufficient to satisfy the bank.

So that his cash reserve will hold to a healthy figure, Harding refrains from drawing upon this account for anything but very special purposes. “I consider it a sort of savings account,” he says, “and it's certainly a comforting feeling to know that I have that money set aside if I ever need it. I like the feeling of security which this substantial reserve gives me.”

Harding has an arrangement with his bank whereby the customer pays 6% interest on his note, with the bank keeping 4% while crediting 2% to Harding's reserve account. What this



OWN^{own} PAPER"

ADVISES JOE HARDING, of Joplin, Mo.,
who has proved to his own satisfaction that
a dealer's best friend is his cash reserve.

(For other angles on financing see page 28.)



actually amounts to is Harding borrowing money at 4% from the bank and charging the customer 6% on his note.

For example, suppose Harding takes to the bank a note for \$1000. The discount on this note at 6% would amount to \$60, so the bank would keep \$40 and credit \$20 to Harding's reserve account.

Selling commercial refrigeration in Joplin, as elsewhere, is a highly competitive business.

"When you are not in a financial position to make your own terms to suit the circumstances," Harding declares, "any competitor who is can

whip the socks off you.

"Finance companies," he points out, "operate on a basis of hard and fast rules, and all personalities or individuals seeking financing aid, must conform to these rules or the companies refuse to accept the paper.

"Many accounts are unable to make the required down payment the finance companies demand. Yet the dealer, knowing the customer personally, is certain the payments can be met, and promptly. In such cases, the dealer who can't handle his own paper, has to spend his time working out trick finance plans instead of devoting his time to selling."

According to Harding, having a finance company handle your paper has still another aspect.

"The worst thing a dealer can do," he said, "is to let the prospect know he is hard up for money. This is a weakness the customer will press to full advantage. Knowing you need the sale badly, he will play the game his way. Instead of the dealer remaining on top of the sale, the customer rides the crest."

Harding goes on to relate how in the past he was underbid beyond reason by competitors who were desperate and had to have that sale to tide them over a rough spot. They made no money on the deal, because the customer wouldn't allow them to.

"When you are financially weak," he emphasizes, "and your customers are aware of it, they know you will take half a loaf because you aren't in position to demand a whole one."

Some manufacturers will finance the dealer's paper.

Continued on page 45



A FINANCE COMPANY might have turned thumbs down on any one of these Harding installations, without a prohibitive down payment. But knowing the circumstances in each case, and being able to arrange his own financing terms on the basis of his knowledge, enabled Harding to make these prospects his customers instead of his competitor's.

In financing your business

Where Does the Money Come From?

THE refrigeration man who has an unlimited working capital back of him doesn't have to worry much about the financing requirements of his business. He can pay cash for the equipment he needs for his inventory and display stock, and arrange time-payment terms, at the retail end, to suit his customers' convenience.

Few of us, however, are in this enviable position. We can't afford to strain our working capital at both ends. It isn't feasible for the average distributor or dealer to carry a sufficient inventory of equipment and offer with his own funds an installment payment plan to promote the sales volume he wants.

Fortunately, it isn't necessary in most cases for the distributor or dealer to tie up a large part of his working capital in his inventory requirements and in providing a monthly payment plan to equipment prospects.

Both types of financing are available from the leading sales finance companies who operate nationally and who in addition to providing funds are able to render a credit and collection service which relieves the refrigeration man of the responsibility of passing on credits and collecting the monthly installments. A number of the leading manufacturers have entered into contractual arrangements with these sales finance companies to encourage the solicitation of both types of financing through the manufacturer's distributors.

In addition, financing at the retail level can be handled through meter-plan merchandising. Particularly with smaller merchants, being able to buy refrigeration equipment by a day-to-day payment basis overcomes two

major obstacles to sales—down payment and lump sum monthly payments.

It should also be remembered that many of the 15,000-odd banks over the country are not only prepared to offer installment financing facilities, but are encouraging inventory financing, in which they advance funds against a distributor's or dealer's inventory secured by a trust receipt or a warehouse receipt.

Wholesale financing is variously referred to as "inventory financing" or

"floor-plan financing". It covers equipment sales made by the manufacturer to the distributor. Title to the merchandise is held by the bank or finance company in most cases until the merchandise is sold to the purchaser, either on a cash or a time-payment basis.

Under the so-called "warehouse plan", equipment is shipped direct from the factory to a bonded warehouse in the distributor's city. Before a distributor can obtain a piece of equipment, he must pay the ware-

TABLE OF TYPICAL TIMES AND TERMS

The table below, issued by one of the leading sales finance companies, shows the typical minimum down payments and maximum maturities on various types of refrigeration, air conditioning and allied equipment.

Type of Product	Minimum Down Payment	Maturity Maximum (Months)
Air Conditioning, Display Cabinets, Walk-in and Reach-in Cabinets, Ice Cream Cabinets, Beer Dispensing Equipment, Beverage Coolers, Ice Cube Makers, Locker Systems, etc.		
Where the total sales prices of the merchandise, plus the installation expense, is \$3,000 or less	*20%	24
Where the total sales price of the merchandise, plus the installation expense, is over \$3,000	*20%	36
Where any of the above installations are eligible for FHA insurance	10%	36

Examples of eligible installations: air conditioning systems with built-in ducts; specially constructed walk-in cooler rooms using built-in equipment.

* Minimum down payment must at least equal total installation cost.

house the cash equivalent of the unpaid wholesale price, following which the lending institution releases the warehouse receipt.

Under the so-called "floor plan", equipment is shipped direct to the distributor and he may display it on his sales floor. When equipment is scarce or the distributor carries a small inventory for any reason, the floor plan arrangement is preferable because of the added feature of allowing the equipment to be displayed and deliveries to be made promptly.

Floor Planning Explained

Under the "floor plan", equipment is usually secured by a trust receipt which is paid off when the equipment is moved off the distributor's sales floor to be installed. Payment to the lending institution is made either in cash by the distributor or by submitting a time-sales transaction covering the item.

In financing equipment from factory to distributor, general practice is for the distributor to pay 10% of the wholesale invoice cost, plus freight and handling charges. The lending institution makes up the difference owed by the distributor by paying the factory 90% of the wholesale invoice cost, excluding freight and handling charges.

Wholesale transactions are usually drawn up on a 90-day basis and most equipment should be sold during this period. However, at the discretion of the lending institution, renewals may be granted for an additional 30, 60 or 90 days. Charges for this accommodation naturally vary with conditions, but in most cases are reasonable enough. In some cases, the lending institution provides insurance against losses by the distributor dues to fire, theft, transportation, etc.

Retail Credit Procedure

In short, the commercial refrigeration distributor need only employ 10% of the wholesale cost of his equipment inventory. Outside agencies are prepared to carry up to 90% of his inventory requirements for periods of from one month up to six months, provided that a satisfactory turnover of merchandise is experienced.

On retail sales—sales by distributors and dealers to various types of commercial establishments—as large

Continued on page 55

Your Banker is a Good Man to Know

REFRIGERATION men generally are not as familiar as they should be with the opportunities for borrowing needed funds which are available to them through the business loan policies, programs and requirements of banks in their localities.

Don't be afraid of your banker. He's interested in making as many business loans as he safely can. This is one of his long-time functions and a potential source of his income. However, in order to make loans with a high degree of safety and protection for the depositors who supply the bulk of the bank funds, a banker needs clear and dependable facts concerning the businesses which ask for loans.

Most businesses, at some time in their operations, need to obtain loans for long or short periods. At such times clear records of officially approved policies and of operating results are essential to favorable credit action by banks.

The first thing your banker will want to know is something about you, as an individual. Particularly in making loans to small business concerns, a knowledge of the personal and moral character of the borrower is a principal requirement. This is because a small business, to a much greater extent than a large one, is dependent upon the character and reliability of one or two key individuals. So the banker will want to know something of how you live, your family and community interests and responsibilities, as well as your business reputation.

Next, the banker will want to know how much you know about your business, and whether or not you really qualify as a business owner. He'll want figures on your past business operations, so he can determine how well you've managed them. He'll want to know how well you've regulated output and operating margins. And he'll be interested in how much of your profits you've withdrawn for personal use, thus reducing the capital available for expansion.

In looking at the loan proposal, the banker will analyze it in terms of enabling your business to sell more merchandise, render more services, or otherwise increase its income. Your business ability thus will be analyzed by the banker through personal appraisal and statement analysis in the process of determining prospects for repayment of the loan.

A tabulated record of your experience in the refrigeration business should go to the bank with you. You will also be expected to furnish a statement of assets and liabilities, and at least a skeleton statement of profit and loss for the latest completed fiscal year. Your balance sheet—assets against liabilities—will show the true financial condition of your business as of a particular date. Your profit-and-loss statement will reflect the success of your business in terms of earning capacity. If your business is an established one, your banker will probably want to look at your profit-and-loss statements for the last two or three years, to judge the trend the business is taking.

Your banker's judgment, of necessity, must be founded on facts. He has to be cautious in approving loans—after all, he's dealing with his depositors' funds, not his own. Get to know your business—and your banker—better. It will help you to avoid serious financial errors, and to obtain sound and experienced advice should you need it.

BUILD YOUR COMPENSATION PLAN ON A PROFITABLE FOUNDATION

Dealer Jones and Dealer Smith both chalked up a sales volume of \$100,000 for the year. Each carried a payroll amounting to 18% of this volume. Dealer Smith had a lower overhead than Dealer Jones. Yet Dealer Jones ended up with a net profit of \$5200 for the year, while Dealer Smith suffered a \$2000 loss.

How come? If you're not good at riddles, you'll find the solution in the accompanying article.

EVERY commercial refrigeration dealer or contractor should have some means of determining whether the wages he pays employees are in line with sound business practices and this can be done only by considering his payroll expense in relationship to the following factors:

1. Margin made on sales.
2. Percentage of payroll to margin.

3. Percentage of sales you can afford to pay based upon that margin.

Many dealers, to their disadvantage, use the payroll-to-sales percentage as a yardstick when appraising the soundness of their compensation plans and overlook the more important payroll-to-margin percentage.

The margin of sales remains fairly constant in the individual business

and is readily determined. Payroll, overhead expense and net profit must come out of this figure. The percentage of margin that you can safely pay employees must form the basis upon which you determine the payroll-to-sales percentage or ratio.

Many dealers compute compensation on a payroll-to-sales ratio arrived at hit-or-miss, when margins differ with the individual business. Average payroll-to-sales figures for dealers in this field or the figures of the dealer in the next town are dangerous to use as your guide.

Keener competition, foolish price-cutting, bad managerial practices, the lack of aggressive promotion may give one dealer a lower margin than another dealer, so figuring the payroll-to-sales ratio without considering the payroll-to-margin ratio is hazardous.

If a dealer is "frozen" to a certain payroll expense, he must manage his affairs so that the payroll-to-margin ratio is kept in the safety zone by minimizing costs, adequate accounting methods and volume-building through aggressive promotional methods.

Of course, external factors, such as trade practices, labor supply and demand, and fixed wage rates, have a bearing on payroll expense. Nevertheless, the dealer should have some means of checking the profitability of his method of compensating employees. The following figures show clearly that margin must be included in any successful method of compensation for employees.

DEALER JONES

Sales for the year.....	\$100,000
Margin on sales—	
40%	\$40,000
Payroll—18% of	
sales	18,000
	<hr/>
	\$22,000
Overhead expense ..	16,800
	<hr/>
Net profit for year ..	\$ 5,200

DEALER SMITH

Sales for the year.....	\$100,000
Margin on sales—	
30%	\$30,000
Payroll—18% of	
sales	18,000
	<hr/>
	\$12,000
Overhead expense ..	14,000
	<hr/>
Loss for year	\$ 2,000

Dealer Jones earned \$5,200 net profit during the year, Dealer Smith lost \$2,000 during the same period, yet, they both had the same sales volume \$(100,000), and the same payroll-to-sales ratio (18%). Incidentally, the figures used here are merely illustrative and are not intended to represent the ratios of any group of dealers. Now, let us analyze the breakdowns of margins earned by these dealers.

DEALER JONES

Payroll ... \$18,000— 45% of margin
Overhead
expense. 16,800— 42% of margin
Net profit . 5,200— 13% of margin

Total ... \$40,000—100% of margin

DEALER SMITH

Payroll \$18,000— 60% of margin
Overhead
exp. . 14,000— 46.66% of margin
Loss .. 2,000— 6.66% of margin

Total .. \$30,000—100.00% of margin

Dealer Jones can afford an 18% payroll-to-sales ratio because he has the payroll-to-margin ratio that can stand it. Dealer Smith, even with a lower overhead against the same volume, cannot afford an 18% payroll-to-sales ratio because the payroll-to-margin ratio is too high.

When the payroll-to-margin ratio exceeds 45%, it is time to take steps to reduce it. Some dealers cannot stand this ratio and earn maximum profits. It all depends upon the lines sold, managerial efficiency and other internal factors.

If a dealer earns a high average margin on sales he can afford a bigger payroll-to-sales ratio than a dealer who sells his wares at a lower average margin.

We do not offer standard ratios for dealers to follow. There are none. The dealer must set up standards suitable to his operations from a study of experience figures, and check results with the formulas given in this article to see that the ratio of payroll-to-margin is kept in the safety zone and not allowed to become excessive.

Our purpose in this article is merely to point out one element of business analysis that must be watched carefully because it has a big influence upon ultimate profit—or loss.

How Much Do You Know About Your Own Business?

RECORDS of some kind are kept by almost every commercial refrigeration and air conditioning dealer and contractor, but the quality and usefulness of these records varies widely with the individual concerns.

Under present-day conditions, however, complete accounts and records are becoming increasingly essential to efficient business operation. Here are some of the more important reasons for keeping detailed records of all business transactions:

- (1) To give management an accurate picture of past operations as an aid in controlling current operations and as a guide to intelligent planning of future policy.
- (2) To satisfy needs of creditors and investors.
- (3) To provide information required by governmental agencies in connection with taxation and regulation.
- (4) To supply both general and detailed information to trade organizations and the public.

Many small businessmen fail to realize the importance of complete and accurate records for management purposes. The typical dealer or contractor, especially at the start of his business, has little knowledge of, or familiarity with, financial statements in terms of their accounting requirements, procedures, and principles.

He frequently is forced to occupy himself too exclusively with the details of everyday operations, and as a result is unable to give sufficient attention to his accounts and statements. Thus he fails to obtain an adequate view of the trends of his business and an understanding of what to do about them.

Except in the smallest concerns, a proprietor cannot expect to have a detailed knowledge of all accounting operations and records. If he starts his business on a small scale and organizes it carefully with clear and complete records he may, by alertness and energy, continue to hold effective control as it grows larger and more complicated.

This type of development, however, is the exception. Many concerns start without proper preliminary planning of records essential to effective management. Later, they find their accounting systems fail to show a clear picture of what goes on in the business.

At this stage, they may plan to modernize the old system of account so as to provide types of information needed in performance of management duties. Usually this proves to be an expensive operation and one that most concerns are slow to take. As a result, efficiency is lowered and the risk of failure and termination increased.

In order for a proprietor to keep his books in the desired detail, he should employ a trained and experienced accountant or bookkeeper. He should then see to it that this bookkeeper has authority and facilities for keeping adequate records and for compiling standard financial statements consisting of a balance sheet and a profit-and-loss statement. He should make further provision for analysis and interpretation of these statements for his own use in reviewing past operations and in planning for the future.

If your business is one which cannot yet afford the outlay for all of these financial services, you yourself, as proprietor or general manager, should acquaint yourself with the basic processes in keeping and

Continued on page 57

PICK YOUR OWN PROFIT

Overhead as percent- age of sales	Break even factor	PERCENTAGE OF NET PROFIT WANTED														
		1%	2%	3%	4%	5%	6%	7%	7½%	8%	9%	10%	11%	12%	12½%	13%
10	1.11	1.12	1.14	1.15	1.16	1.18	1.19	1.20	1.21	1.22	1.23	1.25	1.27	1.28	1.29	1.30
11	1.12	1.14	1.15	1.16	1.18	1.19	1.20	1.22	1.23	1.23	1.25	1.27	1.28	1.30	1.31	1.32
12	1.14	1.15	1.16	1.18	1.19	1.20	1.22	1.23	1.24	1.25	1.27	1.28	1.30	1.32	1.33	1.35
12½	1.14	1.16	1.17	1.18	1.20	1.21	1.23	1.24	1.25	1.26	1.28	1.29	1.31	1.32	1.33	1.34
13	1.15	1.16	1.18	1.19	1.20	1.22	1.23	1.25	1.26	1.27	1.28	1.30	1.32	1.33	1.34	1.35
14	1.16	1.18	1.19	1.20	1.22	1.23	1.25	1.27	1.28	1.28	1.30	1.32	1.33	1.35	1.37	1.38
15	1.18	1.19	1.20	1.22	1.23	1.25	1.27	1.28	1.29	1.30	1.32	1.33	1.35	1.37	1.38	1.39
16	1.19	1.20	1.22	1.23	1.25	1.27	1.28	1.30	1.31	1.32	1.33	1.35	1.37	1.39	1.40	1.41
17	1.20	1.22	1.23	1.25	1.27	1.28	1.30	1.32	1.33	1.34	1.35	1.37	1.39	1.41	1.42	1.44
17½	1.21	1.23	1.24	1.26	1.28	1.29	1.31	1.32	1.33	1.34	1.36	1.38	1.40	1.42	1.43	1.44
18	1.22	1.23	1.25	1.27	1.28	1.30	1.32	1.33	1.34	1.35	1.37	1.39	1.41	1.43	1.44	1.45
19	1.23	1.25	1.27	1.28	1.30	1.32	1.33	1.35	1.36	1.37	1.39	1.41	1.43	1.45	1.46	1.47
20	1.25	1.27	1.28	1.30	1.32	1.33	1.35	1.37	1.38	1.39	1.41	1.43	1.45	1.47	1.48	1.49
21	1.27	1.28	1.30	1.32	1.33	1.35	1.37	1.39	1.40	1.41	1.43	1.45	1.47	1.49	1.50	1.51
22	1.28	1.30	1.32	1.33	1.35	1.37	1.39	1.41	1.42	1.43	1.45	1.47	1.49	1.51	1.52	1.54
22½	1.29	1.31	1.33	1.34	1.36	1.38	1.40	1.42	1.43	1.44	1.46	1.48	1.50	1.52	1.53	1.55
23	1.30	1.32	1.33	1.35	1.37	1.39	1.41	1.43	1.44	1.45	1.47	1.49	1.51	1.54	1.55	1.56
24	1.32	1.33	1.35	1.37	1.39	1.41	1.43	1.45	1.46	1.47	1.49	1.51	1.54	1.56	1.58	1.59
25	1.33	1.35	1.37	1.39	1.41	1.43	1.45	1.47	1.48	1.49	1.51	1.54	1.56	1.59	1.60	1.61
26	1.35	1.37	1.39	1.41	1.43	1.45	1.47	1.49	1.50	1.51	1.54	1.56	1.59	1.61	1.62	1.64
27	1.37	1.39	1.41	1.43	1.45	1.47	1.49	1.51	1.52	1.54	1.56	1.59	1.61	1.64	1.65	1.67
27½	1.38	1.40	1.42	1.44	1.46	1.48	1.50	1.52	1.54	1.55	1.57	1.60	1.63	1.65	1.67	1.68
28	1.39	1.41	1.43	1.45	1.47	1.49	1.51	1.54	1.55	1.56	1.59	1.61	1.64	1.67	1.68	1.69
29	1.41	1.43	1.45	1.47	1.49	1.51	1.54	1.56	1.57	1.59	1.61	1.64	1.67	1.69	1.71	1.72
30	1.43	1.45	1.47	1.49	1.51	1.54	1.56	1.59	1.60	1.61	1.64	1.67	1.69	1.72	1.74	1.75

HOW TO USE THIS CHART

1. Look down the column labeled "Overhead" until you come to the figure which represents the percentage your overhead is of your gross sales. Draw a line under that figure right across the page.
2. From the columns "Percentage of net profit wanted," select the profit you want to make. Look down the column to the line you drew. The figure you find there is known as a factor."
3. Multiply your direct costs by this factor. The result will be the price you should charge. It will pay your overhead and give you the proper net profit.

EXAMPLES

You have completed a job. The labor is \$100. The materials and other direct charges also are \$100, making a total direct cost of \$200. You know that your overhead is 25% of your selling price. You want to make 10% net profit.

Now, you do not just add 10% to your direct costs. That would not give you a 10% profit on your selling price, but something less than that. So what you do is to look down the overhead column to 25%. Draw your line under that figure across the page. Now look in the profit column under 10%. You will find your factor is 1.54. Multiply \$200 (direct costs) by 1.54 (factor) and you arrive at a selling price of \$308.

This price now includes 25% for overhead and it also includes a true 10% for profit.

You may feel your customer won't pay \$308. Perhaps you will be willing to accept 5% profit. Using the chart, you find your new factor is 1.43. Multiplying, you get a selling price of \$286.

The "break even" figure on this chart is there as a warning. If you go below this figure you lose money, for this amount just figures your overhead without any profit. In this example, your "break even" factor would be 1.33. Multiplying, your selling price would be \$266. If you go below this figure, you can't help losing money.

Note that the difference between breaking even and making

5% is only \$20 on a \$266 job. This difference is not important to the customer, but it is important to you. On \$40,000 worth of business, it represents \$2,000 net profit.

When you first decide to use this pricing formula, you have to take into consideration two factors: overhead, and total annual sales. Overhead is a known factor and is unlikely to change much in a given period. Sales, on the other hand, can change enormously. This will affect your pricing formula.

For instance, if you expect to do \$100,000 worth of business next year and expect your overhead to be \$25,000, your overhead will be 25% of sales. That is the figure you would use on the chart.

But you may do only \$75,000 worth of business. Then your overhead, which would probably have changed but little, would be 33⅓% of sales. If you continued to use the 25% figure, you might get your price, but obviously you would not make the profit you expected.

Have your accountant check periodically to be sure your sales are as high as they should be to keep them in line with your overhead.

If your overhead seems too high for your sales, try to increase sales rather than cut overhead which may cripple your business. Your accountant will tell you how much money you can safely spare from your business to use for advertising and other sales building campaigns.

TEAR OUT THIS CHART AND USE IT EVERY TIME YOU FIGURE A PRICE

Do you ever wonder . . .

IF you could somehow reduce your taxes?

IF there is any way to make your service department pay a profit without customers complaining about high prices?

IF you should demand payment from a slow pay customer and risk losing his business?

IF you should tie up capital in a new franchise?

IF you should bid on a job that is way over your head?

IF your business is really sound financially?

If any of these questions are plaguing you, you can clear the way for greater volume and bigger profit by calling upon a CPA for

PROFESSIONAL BUSINESS HELP

A GREAT many men doing business today as commercial refrigeration and air conditioning dealers, distributors, or contractors know far more about the mechanical and technical aspects of the cooling industry than they do about what makes a business succeed or fail.

As a result they are continually plagued by the problems above, and others like them. Their answer to such recurring questions may well spell the life or death of their business enterprise, yet many of them grope for these answers with the same blind stabs they used in pinning the tail on the donkey at childhood parties.

Their ignorance of business procedures and practices is completely understandable. Many of these dealers, distributors, and contractors have come up the hard way, starting out as servicemen working for some other firm, then going out on their own as independent service operators, and finally edging into the merchandising end of the business.

During this progression they may

gain all the technical and practical knowledge they need concerning refrigeration equipment and its applications. But they don't often learn much about how to run a business. As they outgrow the "home made" methods of bookkeeping which seemed to suffice during the early days of their independent operations, these men frequently find themselves in a position where they are turning out first-class work and selling grade-A equipment—but they can't tell for sure whether they are doing it at a profit or a loss!

Their problem is simply this. They themselves don't have the necessary business background and knowledge to keep their growing company's affairs in order. At the same time, they don't feel that the company can afford to hire a full-time employee to handle this work for them.

What they fail to realize, of course, is that they can obtain the services of a professional business consultant as they need it, without the expense of adding another full-time employee to the payroll. They can do it simply by

contacting the nearest certified public accountant.

"Big business" long has made a practice of hiring outside experts in the form of high priced accounting firms to help solve these same basic problems. Now, by availing himself of the services of the CPA, the smallest shop owner can afford to do the same.

The CPA is far more than just a glorified bookkeeper. True, he sets up records for you, but his services go far beyond that. Here is an example of how the advice of a CPA can directly produce profits.

A Boston commercial refrigeration firm grew tired of operating a service department which year after year barely paid expenses. They asked their CPA to work on the problem.

The CPA checked. Overhead did not seem unreasonably high. The men worked efficiently. By all rules the department should show a profit.

Then the CPA asked how prices were set. The answer uncovered the trouble. After he knew the cost of

time and materials on a job, the owner would then add an amount he *thought* would cover overhead and return a profit. "On some jobs," he said, "we make, on some we lose. It depends what the traffic can bear."

The CPA, familiar with this problem in other contracting businesses, prescribed a pricing formula.* Using this formula and a special chart, it was possible to figure within seconds a price which would pay overhead and return any desired profit.

\$20 Turns the Trick

The owner found, for instance, that the difference between breaking even on a \$266 job and making 5% net profit, was only \$20. He figured rightly that this 5% wouldn't make any difference to the customer if the job was well done, but would be important to him. Thereafter he tried to make a practice of never pricing a job below this figure.

He ended the next year with a net profit of 5.6% on \$80,000 worth of service!

Because the CPA is able to answer problems like that of the Boston firm, his is now the fastest growing profession in the United States. He has passed difficult state examinations in accounting and has had to satisfy state officials that he has the experience, education and skill necessary to help you with your accounting problems.

Cut Your Tax Costs

The average CPA is usually the accountant for 20 to 40 businesses and consequently has a great fund of business know-how which he can put at your disposal.

One of the areas in which he can help is taxes. He will prepare your city, state and federal tax returns.

Opportunities to reduce your income taxes occur all the time. There are literally hundreds of opportunities, yet the average business man is aware of none of them.

Take the case of Jones:

Jones was a commercial refrigeration dealer whose CPA had made him tax conscious.

Jones was getting a new delivery truck. He had taken annual depreciation

on his old one, and its book value was now \$900.

The truck had had hard use, however, and the most Jones could get on a trade-in was \$400. He was about to make the trade, but he stopped first to consider the tax effects of the deal.

As a result, instead of trading in his truck, he *sold* it. Then bought a new one.

By *selling* the old truck for less than its \$900 depreciated value, he suffered a book loss of \$500 which he was able to deduct on his income tax return.

If he had *traded* in the truck, he would have suffered the same book loss, but *he would not have been allowed to deduct the \$500 loss*. The reason: no gain or loss is considered to result from a trade-in.

If the car dealer had offered \$500 more than the depreciated value of the truck, Jones might have been better off to *trade in* the truck since the \$500 profit would *not* be taxable.

Certainly you can't afford to neglect opportunities for large tax savings, yet without good accounting—and the services of a lawyer if legal problems are involved—you will miss out on many of them. The government has made rules to give tax relief under certain circumstances, but the government cannot make you take advantage of them.

A good system of records installed by your certified public accountant is the first step towards tax economy. In fact, without proper records, you are risking penalties. The Treasury has court precedent to "bear down heavily upon those whose inexactitude

(failure to prove exact costs) is of their own making."

The records which your CPA will set up to meet tax requirements will also give him a great deal of information about your business. Using certain accounting ratios, he can spot in advance most of the weaknesses which eventually result in business failure. Few businesses fail spectacularly overnight. There are always advance warnings which are easily read by experts.

Watch Those Danger Signs!

A commercial refrigeration firm in Chicago failed because the owner put too much capital into expensive merchandise which moved too slowly. There simply wasn't enough ready cash to pay the creditors. An accountant could have warned that the ratio of capital invested in inventory to working capital was dangerously out of balance.

Another firm did a good service business, but service bills—like doctor bills—are apt to go unpaid. This firm had no regular method of collecting its bills. Accounts receivable were at such a high point that the firm was endangering its own existence.

The firm's CPA pointed out that a vigorous campaign to have bills paid promptly would be the only course of action to save the company. He pointed out, too, that a customer who owes you money is usually a lost customer. As a result, a firm that might

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What's In a Price?

ANY dealer who can add 2 and 2 and consistently come up with 4 for an answer can use arithmetic almost this simple to prove to himself the folly of price cutting. To make it just as plain as A-B-C, here is the way the logic (?) of price cutting stacks up:

(Based on 20% Gross Profit)

A price cut of	Requires this much more dollar volume	Handling this much more merchandise
5%	26%	33 $\frac{1}{3}$ %
8%	52%	66 $\frac{2}{3}$ %
10%	80%	100%
12%	120%	150%
15%	240%	300%

*Because of its importance, this pricing formula and instructions for its use are printed on page 32.

IN REFRIGERATION WORK



**THE BEST
IS NONE
TOO GOOD.**

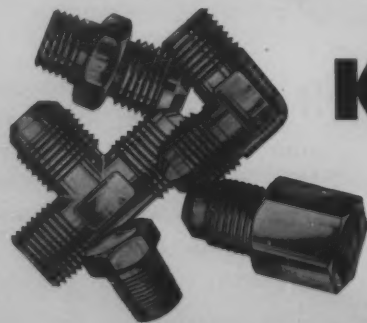
use
KEROTEST

HEAVYWEIGHT

**Refrigeration
Quality**

FITTINGS

<p>Sure is hard to make a Freon-tight joint when you're working with a small hex like this</p> <p>Why not use Heavyweight Refrigeration Quality Fittings that have good, substantial hexes for a secure wrench grip</p>	<p>I'm sure tired of twisting off the corners of those light hexes</p> <p>I'll use the heavy ones from now on!</p>	<p>Next time I'll use fittings with long dry-seal pipe threads</p>	<p>How am I to tighten that nut when short pipe threads leave no clearance for turning?</p>
<p>"Oops, there goes another fitting!"</p> <p>From now on I'm going to get fittings with FLARE PROTECTORS</p>	<p>Why take a chance on castings? there is always a chance for a pinhole leak</p> <p>Use FORGED ELBOWS TEES and CROSSES ...they're absolutely non-porous</p>	<p>Sure they cost a little more</p> <p>BUT the few cents per job extra saves me</p>	<p>"A chain is only as strong as its weakest link"</p> <p>The fittings you use are the links between one piece of your refrigeration equipment and another.</p> <p>You insist on the best in coils, condensing units, valves, driers, and accessories... be sure they are joined together with the best in fittings!</p>



insist on
KEROTEST
HEAVYWEIGHT
Refrigeration Quality
FITTINGS

at your Kerotest Wholesaler . . .

THREE STEPS TO PROPER

Percent Mark-Up On Cost	Gross Profit Margin On Sales
100.0%	50%
81.8%	45%
66.6%	40%
53.9%	35%
42.9%	30%
33.3%	25%
25.0%	20%

Example: Your landed cost is \$618.50

You desire a gross profit of 40%

Refer to "Gross Profit Margin On Sales" column, locate 40%, and read across to "Percent Mark-Up On Cost" column which shows 66.6%.

Multiply landed cost (\$618.50) by 66.6% which equals \$411.92.

Add your landed cost (\$618.50) and your gross profit (\$411.92) and your selling price is \$1030.42.

1 Formula to determine mark-up on cost required to obtain any specific percent of gross profit.

2 Formula to determine minimum sales volume required to break even in business operation.

35% Gross Profit...Average Monthly Expense x 2.857 Equals Minimum Volume*
 40% Gross Profit...Average Monthly Expense x 2.5 Equals Breaking Point
 45% Gross Profit...Average Monthly Expense x 2.222 Equals Breaking Point*
 50% Gross Profit...Average Monthly Expense x 1.0 Equals Breaking Point

*Factor carried only to third decimal place.

Example: You are marking up your landed cost 66.6% to secure a gross profit of 40% on sales.

Your average monthly expenses (sales, service, and administrative) is \$2760.00.

In order to break even (show no loss from operations) your minimum sales volume must be \$2760.00 x 2.5 or \$6900.00 per month.

Your Gross Profit Is	Divided Expense	Into Profit	Enter Your Monthly Expense In This Column	Factor	Answer Is Minimum Sales Volume Required
35%	25%	10%	\$00.00	X 4.0	\$00.00
40%	30%	10%	\$00.00	X 3.33 ^a	\$00.00
45%	35%	10%	\$00.00	X 2.86 ^a	\$00.00
50%	40%	10%	\$00.00	X 2.5	\$00.00

^aFactor carried only to second decimal place.

Example: You are marking up your landed cost 66.6% to secure a gross profit of 40% on sales.

Your average monthly expenses (Sales, Service, Administrative) is \$2760.00.

In order to secure 10% profit your minimum sales volume must be \$2760.00 x 3.33 or \$9170.80 per month.

3 Formula to determine minimum sales volume required to recover 10% profit at various gross profit levels where expenses are known.

PROFIT MARGINS

THESE three formulas for intelligent business operation have been developed by George R. Lindahl, Jr., general sales manager of Super-Cold Corp., on the basis of his long personal experience in the commercial refrigeration field.

They are intended specifically as operating aids for those dealers and distributors who may not have the benefit of professional accounting advice. They are designed to help such dealers and distributors quickly and easily determine the proper price at which to sell any piece of equipment in order to obtain the gross profit desired, the minimum sales volume required to break even in their business operations, and what sales volume they must achieve to recover a profit of 10% before taxes.

The table of Typical Operating Ratios for commercial refrigerator dealers is based on one prepared for the Commercial Refrigerator Manufacturers Association. Lindahl has altered the survey somewhat in order to make the figures conform to the classification of expense tabulated below.

The principal change involved was in converting certain items that he considers as expense from the cost of doing business, where they were originally inserted. This naturally affects the percentage figures for "Cost of Goods Sold", "Gross Profit On Sales", and "Total Expense", but in no way affects net profit and in Mr. Lindahl's opinion gives a truer comparison.

TYPICAL OPERATING RATIOS of Commercial Refrigerator Dealers

	Average	Sales			Profits		
		Small	Medium	Large	Low	Medium	High
TOTAL SALES	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
COST OF GOODS SOLD	68.2	67.3	67.5	69.1	66.8	69.7	66.4
GROSS PROFIT ON SALES	31.8	32.7	32.5	30.9	33.2	30.3	33.6
OPERATING EXPENSES:							
SERVICE AND INSTALLATION	6.4	6.2	7.0	6.1	11.4	4.7	5.5
SALES	7.7	6.2	7.9	8.2	8.4	7.5	6.5
ADMINISTRATIVE	11.6	13.5	11.1	11.0	11.8	12.5	10.6
TOTAL EXPENSE	25.7	25.9	26.0	25.3	31.6	24.7	22.6
NET PROFIT (BEFORE TAXES)	6.1	6.8	6.5	5.6	1.6	5.6	11.0

SALES

SMALL—Less Than \$200,000 Annual Volume

MEDIUM—From \$200,000 to \$500,000 Annual Volume

LARGE—Over \$500,000 Annual Volume

PROFITS

LOW—Less than 4%

MEDIUM—4 to 8%

HIGH—8% and over

CLASSIFICATION OF EXPENSE

A. Service and Installation Expense

Service Labor and Commissions
Service and Installation Materials Used
Freight on Service Materials
Shop Supplies and Expense
Trucking Labor
Truck Expense
Truck Depreciation
Contractors' Charges—Trucking
Contractors' Charges—Electrician
Contractors' Charges—Service
Service Cars Expense
Service Cars Depreciation
Electrical and Refrigeration Permits
Service Men's Telephone Expense

Stationery, Printing, and Postage
Service Men's Travel Expense

B. Selling Expense

Salaries
Commissions
Salesmen's Advances Charged Off
Stationery and Supplies
Advertising
Travel and Entertainment
Miscellaneous Expense

C. Administrative Expense

Manager's Salary
Salaries—Clerical
Collectors' Salaries

Traveling and Entertaining
Office Supplies
Telephone and Telegraph
Legal Expense
Taxes
Auditing
Repairs and Maintenance
Collection Expense
Dues and Subscriptions
Donations
Depreciation—Machinery and Fixtures
Depreciation—Collectors' Cars
Miscellaneous
Amortization—Leasehold Improvements
Light and Power
Insurance
Rent



Chase Copper Refrigerator Service Tube ($\frac{1}{8}$ " to $\frac{3}{4}$ " diameter) comes in this handy new package . . . makes it easy to use, store, identify and ship.

...Because It's CHASE COPPER REFRIGERATOR SERVICE TUBE

You, too, will prefer Chase Copper Refrigerator Service Tube—from the first time you use it! You'll find it easy to work because it's soft . . . easy to bend because of its uniform temper. Controlled annealing means tube that is clean, bright, oxide-free. The Chase new end seal keeps it clean and dry inside. Made in $\frac{1}{8}$ " to $\frac{3}{4}$ " diameters and standard 50' lengths.

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NEWS OF THE INDUSTRY

SINGLE LOCKER GROUP FORMED

The two associations serving the frozen food locker industry were merged into a single organization during the 11th national Frozen Food Locker Convention in Chicago during September.

The new association will be known as the National Frozen Food Locker Institute. It is successor to the Frozen Food Locker Institute (manufacturers, suppliers and contractors) and the National Frozen Food Locker Association (locker operators).

Heading up the new NFFLI as president is Roy J. Burns, Carroll, Iowa, locker operator. A. L. Sprague, E. E. Jackson and W. S. Winstead are vice presidents; M. J. Nehring is treasurer; and directors are Archie Limon, L. J. McKahan, Perry Phillips, C. W. Freze, Ed Wyckoff, M. V. Wiese and R. L. Madeira.

FRIGIDAIRE UPS PRICES 3-6%

Effective Sept. 26, Frigidaire Div. of General Motors Corp. announced increases of from 3 to 6½% in the prices of a number of its commercial refrigeration and air conditioning products. The percentage price increase on individual products was as follows:

½ ton window conditioner	5%
1 ton window conditioner	6½%
3-5 ton store units...	5½%
10 ton store units....	3
Suspended 5 ton unit.	4
Ice Cream Cabinets...	5
Commercial Meter-Miser	6½%
Recip. compressors under 5 hp	6
Comm. A.C. coils ...	5
Self-Cont. milk coolers	5
Bulk ice makers	5
Dry Bev. coolers	5
A.C. air handling units	6½%

NEW AGENCY IN CHARGE OF PRODUCTION

Secretary of Commerce Charles Sawyer has announced the establishment of the National Production Authority to administer necessary priority, allocation, and inventory controls and other provisions of the Defense Production Act delegated to the Department of Commerce by the President.

Secretary Sawyer named William Henry Harrison as Administrator of the new Authority.

The new agency will be responsible, (1) for determining requirements of materials needed to maintain national defense, the civilian economy, and established foreign policies of the United States; (2) for formulating and executing policies and programs by which the American economy can meet these requirements.

In addition to a Program division and an Industry Operations division, the NPA will include areas devoted to the requirements of the civilian economy, small business and labor.

Various divisions of the Department of Commerce Office of Industry and Commerce have been transferred to NPA.

Secretary Sawyer also announced plans for the establishment of an inter-agency advisory committee on priorities administration to advise NPA on policy and program matters affecting the interests of the represented agencies. The NPA Administrator will serve as chairman and agencies represented on the committee will include: Department of Defense, Interior, Agriculture, State, Commerce, Labor, Atomic Energy Commission, Housing and Home Finance Agency, and ECA. The National Security Resources Board will serve in an observer capacity.

Secretary Sawyer said

DR. WILLIS CARRIER DIES ON OCTOBER 7

Dr. Willis H. Carrier, chairman emeritus of Carrier Corp., died Oct. 7 of a heart ailment. He was 73 years old.

His death occurred in the New York Hospital of the Cornell Medical Center, where he had been going regularly for treatment during the last two years.

Funeral services were held Oct. 10 from Park Central Presbyterian Church, Syracuse, with burial in Forest Lawn Cemetery, Buffalo.

Widely acknowledged as "the father of air conditioning," Dr. Carrier, although in virtual retirement for the past few years, had nevertheless kept in close touch with the young engineers he had helped to train.

A biographical sketch of Dr. Carrier appears on page 42 of this issue.

that existing facilities and services of the department will be made available to NPA pending further development of the organization and facilities of the new controls agency.

First official NPA "industry control" order was an inventory control measure designed to curb the commercial stockpiling of 32 important war materials. All types of iron, steel, copper and aluminum are included in the inventory controls order, together with some chemicals (including chlorine and benzene, which might affect refrigerant production).

The NPA order requests manufacturers to hold stocks of the specified materials to a "practicable minimum working inventory." It is generally considered as a starting point from which the agency's broad allocations-priority inventory powers could be exercised.

STAGE SET FOR REMA-RSES EVENT IN LONG BEACH

Three events—the 1950 West Coast Educational Exhibit and Conference, the 13th annual Convention of RSES, and the annual Convention of Refrigeration and Air Conditioning Contractors Association—are expected to attract thousands of refrigeration men to Long Beach, Calif. in the period between Nov. 15 and 19.

The Educational Exhibit is being sponsored by REMA and many of the leading manufacturers will have displays of an educational type, staffed by men who can help with field problems. REWA again will sponsor a contest with a prize for the best statement on which of the exhibits was of greatest educational value.

Contractors will hold their annual meeting Nov. 15 and 16 at Hotel Lafayette. For information on the nature of their program, see page 60.

RSES meeting headquarters will be the Wilton Hotel.

Exhibits will be open Nov. 17 from 1 to 5 p.m. and from 7 to 10 p.m.; Nov. 18 from 10 a.m. to 5 p.m.; and Nov. 19 from noon to 4 p.m.

MAY PLAN CANADIAN ALL-INDUSTRY SHOW

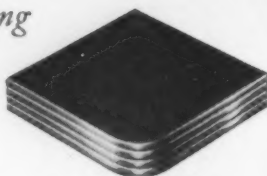
Possibility of holding in Canada an all-industry show similar to those now being held every two years in the United States was discussed at the recent summer meeting of the Canadian Refrigeration Manufacturers Association in Toronto.

The all-industry exposition, it was believed, would be preferable to the several regional showings now staged throughout Canada. Various refrigeration associations would be asked to hold their meetings in connection with the affair.

An Important Advance In Johnson Table Top Design

Exclusive Stainless Steel Edging

Johnson Formica Table and Counter Tops, long outstanding for appearance and quality, are now available with newly designed stainless steel edges.



The stainless steel edging is anchored much more securely than former types to provide a closer fit to the table top. Crumbs and dirt cannot now work down between the edge and top, and the possibility of accidentally breaking away the edge is virtually eliminated.

The combination of always-bright stainless steel edging and "Super Smooth" Johnson Formica surfaces, results in tables and counters of beauty and durability without compare.

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FORMICA

ASRE TO CONVEENE IN N. Y. DEC. 3-6

The 46th annual meeting of American Society of Refrigerating Engineers will be held in New York City from Sunday, Dec. 3, through Wednesday, Dec. 6, 1950. All events of the meeting, except for inspection trips and sightseeing expeditions, will be held at the Hotel Commodore.

Technical sessions and specialized conferences will start Monday, Dec. 4, while meetings of the various ASRE committees will begin on Dec. 3. The registration desk at the Commodore will first open at noon Sunday.

Program includes such well-known national figures as Dr. Clarence A. Mills, professor of experimental medicine at the University of Cincinnati, and Vilhjalmur Stefansson, world famous arctic explorer and author.

Technical subjects will range from refrigeration's place in food processing to such basic engineering matters as the application of the restrictor tube as an expansion device.

A-P ACQUIRES PLANT IN CANADA

Acquisition of a plant in Cooksville, Ont., to be used for the manufacture and assembly of controls has been announced by the Automatic Products Co.

E. A. Vallee, executive vice-president of Automatic Products, said the plant had been purchased from Durham Fabrics, Ltd. The building was taken over by Automatic Products Oct. 2. Vallee said that it would be the first plant of its kind in Canada, and is the first plant purchased by Automatic Products outside Milwaukee.

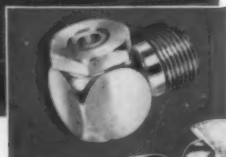
The Canadian plant will be used to manufacture and assemble gravity-fed oil burner controls; commercial refrigeration controls; and, eventually, gas controls.

BAL-AIR INCREASES PRICES BY 5%

Bal-Air Corp., Nashville, Tenn., manufacturer of air conditioning equipment, has announced a price increase of 5% on its equipment, effective as of Sept. 1.



A typical Binks Type "K" heavy-duty, induced draft cooling tower.



Clog-proof Rotojet nozzles are used in both the spray-filled and deck-filled towers.

For large scale water cooling... Binks Type "K" Towers cut your costs

Eliminate costly water consumption

Let a Binks Type "K" heavy-duty, induced draft tower cut your cooling-water costs by reducing water consumption to the minimum. The same cooling water is circulated over and over. A small power charge for pumping takes the place of a big water bill.

Assure better performance

Type "K" cooling towers give high cooling efficiency...the correct air to water ratio. They create their own breezes...are independent of natural air circulation. This is a big advantage in crowded locations. Binks

Rotojet Nozzles insure correct fluid breakup for maximum heat dispersal.

Binks Type "K" towers are used extensively in connection with large-scale air conditioning, refrigeration, and related applications. They are made in a range of standard sizes in both deck-filled and spray-filled models. A Binks engineer will gladly help you solve cooling problems.

Send today for technical bulletins describing Binks Type "K" Induced Draft Cooling Towers. Ask for:

Bulletin 36—Type 2KS Spray Filled Cooling Towers (150 to 645 GPM)

Bulletin 37—Type 2K-W Wood Filled Cooling Towers (150 to 495 GPM)

Bulletin 39—Heavy-duty Type "K" Cooling Towers (1000 to 3000 GPM)

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GIBSON INTERESTS PURCHASE CONTROL OF NEWPORT STEEL

A group headed by Frank S. Gibson, Jr. has purchased control of the \$36 million Newport Steel Corp. from C. Russell Feldman and associates. Gibson has been named president and chairman of the board of Newport Steel.

One of the divisions of Newport Steel is Universal Cooler, Marion, Ohio, manufacturer of refrigeration units.

The change in management control will bring no changes in the policies, management personnel, or method of doing business of Universal Cooler Div., it was stated.

ARMSTRONG TO USE NELSON DEVICES

The Armstrong Cork Co. will handle Nelson stud welding insulation pins and speed clips through its national distribution channels, for use with the installation of industrial insulating materials, according to an arrangement just concluded with the Nelson

Stud Welding Div. of Morton Gregory Corp.

The Nelson system is being widely used as a means of installing insulation materials on boiler and power house equipment, duct work and building enclosures.

ANOTHER NEW PLANT FOR RANCO

Ranco, Inc., Columbus, Ohio, has announced the purchase of a plant site north of Plain City, Ohio, for the manufacture of new products which the Ranco engineering department has developed. A quonset-type plant will be constructed, and is expected to be finished by next summer.

Ranco now operates three plants in Columbus, where it makes refrigeration controls. It also operates a plant at Delaware, Ohio, producing automobile heater controls, and recently established a plant in Glasgow, Scotland.

Total employment in Columbus and Delaware is now 2100 persons. The new plant is expected to eventually employ 500.

FOR WEST COAST HERMETIC SERVICE



TECUMSEH OPENS PLANT IN CALIF.

Tecumseh Products Co. is now operating a new west coast service plant in Emeryville, Calif., it was announced by Ray W. Herick, president.

This modern plant has a floor area of 40,000 sq. ft. where complete rebuilding and servicing facilities are available on all Tecumseh hermetic compressors and refrigeration units.

Production lines were set

up by Tecumseh engineers and are patterned after those of Tecumseh's main plant. They include air dehydration of compressors, infra-red ovens, paint spray booths, re-operating facilities for condensers, evaporators and new tube assemblies.

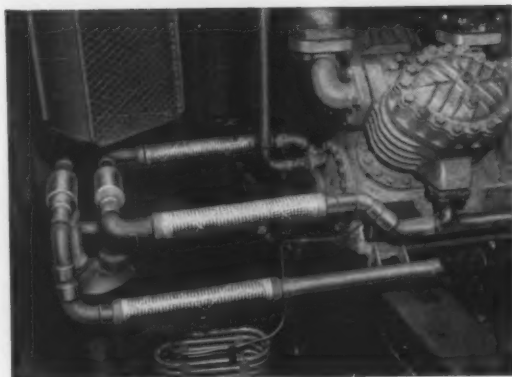
This west coast factory servicing is expected to effect a definite savings on service time and freight costs for Tecumseh customers. All rebuilt equipment will get final refrigeration inspection in this new plant.

Another Problem SOLVED

ELIMINATING COMPRESSOR VIBRATION WITH

Bendix Eclipse Flexible Metal Hose

Twenty-four-hour operation of a huge icebox for cold testing (to -83° F.) aircraft instruments, plays a vital role in maintaining the supply line to today's multi-engined and supersonic aircraft. Greater assurance of a continuous duty refrigerating plant was given with the installation of Bendix Vibration Reducers for absorbing compressor vibration. Manufactured from seamless drawn tubing, the deep parallel corrugations and uniform wall thickness assure maximum flexibility and service life. Bendix Vibration Reducers in



standard sizes—all chemically cleaned and sealed—are available from stock. Special assemblies can be engineered to your requirements. Write today and let our engineers work out your problem with you.

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Export Sales: Bendix International Division, 72 Fifth Avenue, N. Y. 11, N. Y.

Dr. Willis H. Carrier, 1876 - 1950; "Father of Air Conditioning"

DR. WILLIS H. CARRIER, who died Oct. 7 at the age of 73, earned an undisputed reputation during his life-time of being the founder of the air conditioning industry.

For many years chairman of the board of Carrier Corp., and later chairman emeritus, Dr. Carrier was active as a scientist and engineer in the air conditioning and refrigeration field for half a century. During the last few years of his career, however, he devoted himself principally to writing and to advising the scores of skilled engineers he had trained to carry on his work.

He was a prominent member of American Society of Mechanical Engineers and was awarded the gold achievement medal of that organization. He served as president of both American Society of Heating and Ventilating Engineers and American Society of Refrigerating Engineers and was awarded two other gold medals for his pioneering work in the exact control of temperatures and humidity in enclosed areas.

He was the American representative at the World Engineering Congress in Japan in 1930 and in 1940 was selected as a "Modern Pioneer of American Invention" by the National Association of Manufacturers. In 1947 he was one of three Americans invited to address the centenary celebration of Britain's Institution of Mechanical Engineers.

Dr. Carrier was interested primarily in the engineering, development and research phases of the industry he founded, and in training younger engineers. He did not choose to devote any large part of his time to the business operations of Carrier Corp.

His First Installation

Dr. Carrier developed and installed the world's first scientific air conditioning system in 1902. As a project engineer for Buffalo Forge Co., Buffalo, N. Y., he was given the job of solving the temperature and humidity problem that had interfered with the summer operations of the Sackett-Wilhelms Lithographing and Publishing Co. of Brooklyn.

The equipment he devised for this

first installation was so cumbersome and complicated that he immediately started a search for a better method. The idea that led to a solution came to him one autumn night when a cold, heavy fog enveloped the station in which he was waiting for a train. He figured that if he could produce an artificial fog in a stream of air and control the temperature of the fog, he could "wring" the water from the air at will. By 1905 Dr. Carrier was able to announce the invention of the Spray-Type Air Conditioner. A number of pioneering installations followed—the first in a glue factory that needed drier air and in a textile mill that had to have exact control of humidity. This system was capable of heating, cooling, humidifying and dehumidifying and with a number of refinements it still stands today as one of the most efficient types of apparatus available for air treatment. The whole vast science of air conditioning actually started with this Spray-Type Air Conditioner.

How the Idea Developed

In writing to a friend about this pioneer work, Dr. Carrier told his story about the idea that came to him in an autumn fog and added:

"This is the gist of the story. In the development I borrowed and adopted many old devices and invent-

ed others. This still goes on—but I envisioned this process of cooling and dehumidifying applied to human comfort and health (as well as in manufacturing) and predicted it in writing in 1905 and was laughed at."

The invention and development of the dew-point control system followed and in 1907 he patented the Differential Thermostat and Differential Hygrostat. After five more years of constant research among the factors related to the dehumidification of air through mechanical refrigeration, Dr. Carrier presented to the American Society of Mechanical Engineers his "Rational Psychrometric Formulae." This paper delivered in 1911, disclosed for the first time the laws of psychrometry. It created a sensation and became a fundamental engineering doctrine.

The Psychrometric Chart

After further exhaustive research in dew-point temperatures, much of it carried on in the laboratory of Cornell University, his alma mater, Dr. Carrier perfected in 1919 his previously published Psychrometric Chart. This stands today as the final authority on the subject.

In 1907, Dr. Carrier and a group of his colleagues formed the Carrier Air Conditioning Co. of America as a subsidiary of the Buffalo Forge Co. He was the guiding genius of the engineering and research division of the new company.

In 1915, the Buffalo Forge Co. decided against further activity in the engineering phases of the air condi-

Continued on page 97



Five of the men who worked with Dr. Willis H. Carrier when he invented and then produced the first centrifugal refrigeration machine are shown with him during a brief ceremony marking the completion of the 2,000th such machine by Carrier Corp. Standing (left to right) are Adolph Zulinke, development engineer; William Stevenson, foreman, centrifugal department; R. W. Waterfill, of Buensod-Stacey, Inc.; Cloud Wampler, Carrier president; John Cosgrove, foreman, centrifugal department. Dr. Carrier is seated. This is one of Dr. Carrier's last official photographs.

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IMPERIAL TORPEDO® DRIERS



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FILTERING AREA GRADUATED WITH DRIER CAPACITY. Specially designed monel metal finger screens provide more than ample filtering area in all sizes.

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DUST-FREE SILICA GEL assures more efficient drying action and far longer operation without cleaning . . . provides added protection against clogging.

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NON-REFILLABLE DRIERS



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Cat. No.	Horse Power	Cubic Inches	Size of Flare Connections	List Price Each
903-C	1/4 to 1/4	3	1/4"	\$2.30
906-C	1/4 to 1/2	6	1/4"	2.85
909-C	1/2 to 3/4	9	1/4"	3.35
912-C	3/4 to 1	12	1/4"	3.85
			3/8"	4.10
918-C	1 to 1 1/2	18	1/4"	4.60
			3/8"	5.10
930-C	1 1/2 to 3	30	1/4"	6.85
			3/8"	7.10

REFILLABLE DRIERS



Furnished with Forged Flare Nuts and Copper Seal Caps

Cat. No.	Horse Power	Cubic Inches	Size of Flare Connections	List Price Each
809-C	1/2 to 3/4	9	1/4"	\$4.00
812-C	3/4 to 1	12	1/4"	4.50
			3/8"	4.75
818-C	1 to 1 1/2	18	1/4"	5.25
			3/8"	5.75
830-C*	1 1/2 to 3	30	1/4"	7.50
			3/8"	7.75
			1/2"	8.00
850-C*	3 to 5	50	3/8"	10.00
			1/2"	10.50
			3/4"	10.75
875-C*	5 to 7 1/2	75	3/8"	14.00
			1/2"	14.50
			3/4"	15.50

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BUSINESS HELP . . .

Continued from page 34

have been just another business casualty, pulled out of danger.

A commercial refrigeration firm in the South accepted from a contractor with a dubious reputation, an air conditioning contract which was several times larger than anything it had previously handled. The contractor failed and the company failed with him.

An accountant could have warned

that accepting too much credit from manufacturers and tying up too much money in one job was dangerous for a company of this size. He might also have examined the books of the contractor and warned of his precarious financial condition.

So goes the list. It could include the owner who "bled" his business to death by taking too much salary. It could include the company which dealt almost exclusively in "long shot" equipment from fly-by-night manufacturers. The sales figures on these allegedly high-profit items

looked fine, but the free service which the inferior equipment required almost bankrupted the owner whose eye had been fixed only on sales.

When you retain a certified public accountant and use him as a business advisor, you are purchasing peace of mind from these hazards.

The American Institute of Accountants has prepared a check list of seven questions which you can periodically ask your accountant in order to warn you of approaching danger.

Here are the questions:

1. Am I including all the items I should in my overhead and does my pricing formula charge each customer with a portion?
2. Am I giving too much credit?
3. Am I accepting too much credit?
4. Is my inventory too large?
5. What percentage of profit am I making on my selling price?
6. If I didn't make the profit I expected, where does my trouble seem to lie?
7. Is there any other way in which my business does not seem as healthy as it should be?

If your business is healthy, it will take your accountant very little time to answer these questions. Consequently the charge will be negligible. If your business is not healthy, it may take extended probing to find the cause and correct it.

In any case, your CPA's fee will be an investment which will repay you many times. The records he sets up will be simple, and—unless you have a large business—you will be able to make the entries yourself without the help of a bookkeeper. Once every month, three months or six months your CPA will audit the books. He is available for consultation, of course, at any time between calls.

Sound accounting as instituted by a certified public accountant will help to insure not only profits but peace of mind.

CHASE IN DENVER

Chase Brass & Copper Co., Inc., has opened a Denver sales office at 1421 Court Place. The Denver office makes a total of four sales offices for the company, which also operates combination warehouses and offices in 23 other U.S. cities. Charles J. McWhinnie is manager of the new office, assisted by John M. Ceranich.

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General Purpose Motors

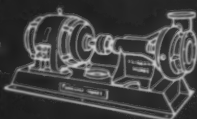


High Torque Compressor Motors



Axial Air-Gap Motors

FOR MORE
IN *Pumps*



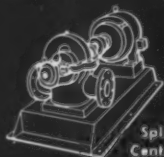
Side-Suction Centrifugal Pumps



Built-together Centrifugal Pumps



Westco Pumps



Split-Case Centrifugal Pumps



Vertical Deepwell Turbine Pumps

You'll get more . . . in performance, efficiency and satisfaction . . . by relying on Fairbanks-Morse as your source for motors and pumps. With Fairbanks-Morse, you are not limited in your selection . . . the broad line enables you to get the right unit for

your individual requirements. You deal with motor and pump experts . . . men who are familiar with your problems. For more in motors and pumps, consult your nearest Fairbanks-Morse Branch or write Fairbanks-Morse & Co., Chicago 5, Ill.



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HOME WATER SERVICE AND HEATING EQUIPMENT • RAIL CARS • FARM MACHINERY

WHERE DO YOU FIT? . . .

Continued from page 24

You will not want to stock too heavily the higher priced items of equipment. You will want to buy equipment and material in carload lots for those large contracting jobs which require it. You will want to balance out your line of merchandise over the fast selling items that fall in the medium price bracket.

In selecting your lines of equipment in any of the three fields, Anderson warns, it is important to concentrate on good reliable lines that not only have a potent sales appeal but that will operate with a minimum of trouble and keep your warranty calls at a minimum. Remember, nothing eats into your profits quicker than frequent callbacks to keep a job going, and nothing will kill your reputation quicker than a job that doesn't perform the way it should.

FINANCE YOUR OWN . . .

Continued from page 27

"In this case," says Harding, "you embarrass yourself and make it difficult to do business with any large, reliable firms. They will not sign a mortgage on equipment yet to be delivered and installed.

"The customer wants to do business with a dealer he believes to be reliable in the event there are adjustments to be made. He wants some assurance the dealer is going to be in business to fulfill the service obligations he promised."

Some deals are not best financed on installment payments, Harding believes. In such cases he installs the equipment on the meter plan. Harding is convinced that if the dealer isn't able to buy equipment and sell it as he sees fit—"a dealer has to take some chances"—he is definitely handicapped. Instead of running his own business, he points out, the finance company runs it for him.

MORE REFRIGERATION SPACE FOR NAS

Plans for the rehabilitation of a refrigerating unit to supplement cold storage facilities already in use at the Naval Air Station in Jacksonville,

Fla., are being prepared by the Public Works Department.

The supplementary unit will add 62,500 cu. ft. of refrigeration to the present 148,000 cu. ft. The increase is necessitated by the reactivation of Cecil Field and the provisioning of ships removed from the "mothball" fleet at Green Cove Springs Naval Station, it was said by Capt. H. F. Gingrich, supply officer.

**BUY FROM YOUR
REFRIGERATION WHOLESALER**

NAMED LIFE MEMBERS

Lester T. Avery, president of American Society of Heating and Ventilating Engineers, recently announced the election of eight life members of the society. They are: L. L. Anthes, Toronto, Ont., Canada; H. P. Cant, Glenmore, Pa.; William McClintock, New York City; L. Walter Moon, St. Louis, Mo.; Robert M. Rosebrough, Webster Groves, Mo.; J. O. Ross, New York City; Alfred E. Stacey, Jr., Syracuse, N. Y., and Walter G. W. Turno, East Orange, N. J.



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for Performance



LARKIN TURRET HUMI-TEMP

The acid test of any product is performance. That's why you will find Larkin products used so widely for so many different refrigeration and air-conditioning applications. Users know from past experience that they can count on Larkin for top performance—day in, day out—year in, year out.

Manufacturers of the original Cross-Fin Coil — Humi-Temp Units — Evaporative and Air Cooled Condensers — Air Conditioning Units and Coils — Direct Expansion Water Coolers — Steel Vacuum Plate Coils — Heat Exchangers.

WATCHDOG OF THE NATION'S FOOD SUPPLY

LARKIN COILS

819 MEMORIAL DR., S.E. • ATLANTA, GA.

Servicemen!

FOR MAXIMUM EFFICIENCY USE

CHICAGO SEALS AND VALVE PLATES



Chicago Seal
MADE IN U.S.A.

CHICAGO SEAL CO.

332 S. HOYNE AVE.
CHICAGO 12, ILL.

USEFUL

BULLETINS • BOOKLETS • CATALOGS

The publications listed below are available to readers without charge. Simply list on the postcard in this issue the key numbers of the items you wish to receive. Your requests will be forwarded directly to the companies concerned.

INSULATION

K-1—Low Temperature Insulation . . . A 12-page booklet issued by the Dow Chemical Co. describing the properties of Styrofoam insulation for low temperature applications. Booklet describes installations in cold storage and freezing rooms, application of bonding agents, structural methods, roof insulation, and finishes.

REGULATORS

K-2—Flow Regulators . . . A new bulletin (No. 502) issued by W. A. Kates Co. featuring a cutaway illustration in color explaining the operation of the Kates direct acting flow regulator. Specifications are given for regulators from 0.1 to 100 gallons per minute. The regulator is available for controlling flow of water, acids or oils at high or low temperature and/or pressure.

K-3—Pressure-Temperature Regulators . . . A new 32-page booklet issued by Spence Engineering Co. containing information about pilot-operated pressure and temperature regulators. Illustrated with photos, charts and tables, the booklet discusses main valve, controls and strainers, gives capacity and flow data as well as dimensions and weights.

SHOP TOOLS

K-4—Soldering Gun . . . New soldering information is contained in the Soldering Gun Catalog issued by Weller Electric Corp. Fully illustrated, catalog covers the complete line of Weller guns for various soldering requirements and features new light-duty model with dual spotlights, designed to eliminate shadows in the working area. Detailed descriptions and prices included.

K-5—Impact Tool . . . A folder describing a new tool, the "Impakdriver," issued by H. K. Porter, Inc. The tool is designed for use in starting stubborn nuts, bolts or screws that are rusted or frozen on, and is said to provide a simple answer for working in hard-to-get-at places. Tool is sold separately or in sets with different combinations of bits and sockets for various types and sizes of screws, bolts and nuts.

**BUY FROM YOUR
REFRIGERATION WHOLESALE**

COMPRESSOR OIL

K-6—Refrigerating Machine Oil . . . Latest edition of the "Frick Refrigerating Machine Oil" bulletin, issued by Frick Co., Inc. Designated as Bulletin 140-K, it describes the desirable properties of lubricants used in refrigerating machines, and lists the recommended weights of oils for the various types and capacities of compressors in Frick's line.

AIR DIFFUSERS

K-7—Air Diffusers . . . A new four-page folder (Bulletin 32) issued by Anemostat Corp. of America describing how to apply air diffusers in textile plants. Folder tabulates factors governing atmospheric conditions in textile plants which are essential for manufacture, processing and preservation of goods and for comfortable conditions for plant workers.

WATER CONDITIONING

K-8—Water Conditioning Manual . . . Industry's three enemies of profit control—scale, corrosion and algae—and how they can be controlled, are presented in a new brochure published by Aquatrol, Inc. Manual tells reasons for development of scale in water lines, etc., and shows how corrosion attacks costly equipment. Also how algae and bacteria develop and damage cooling towers and other water-using equipment.

SPEED RECORDERS

K-9—Recording Instruments . . . A new bulletin issued by O. Zernickow Co. describing and illustrating two new speed indicating and recording instruments. New hand tachometer indicates rpm and fpm speeds in various combinations from 30-48000 rpm, 15-24000 fpm; hand tachograph, in same range combinations, charts times and speeds.

STEEL SHELVEING

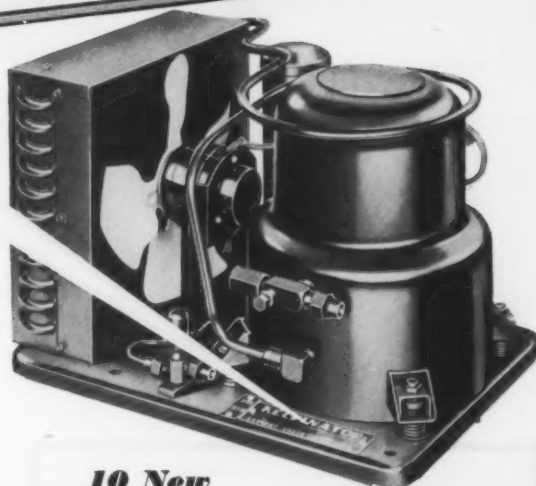
K-10—Shelving . . . Literature issued by Equipito Div. of Aurora Equipment Co. on its line of steel shelving, parts stock bins and other steel shop furniture. Features a new steel drawer separator especially useful in storing small parts. Divider is tilt-type and has label bracket for identification of parts stored.

Use this Calling Card to "Re-Call" Customers...



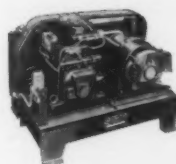
Garner your share of tomorrow's market . . . by selling Kelvinator today! Proof? Kelvinator has met the needs of customers . . . *with extra-values* . . . over 36 years! See, for instance, Kelvinator's wide range of ten, hermetic-type condensing units in sizes up to and including $\frac{1}{2}$ H.P. Each is built to Kelvinator's precision-tested standards. Each is competitively priced and bears the name users immediately associate with top quality.

Your next job? Choose Kelvinator. You'll have the right condensing unit . . . and repeat business will prove it. For complete information call your nearest Kelvinator Distributor or Zone Office. Kelvinator, Division of Nash-Kelvinator Corporation, Detroit 32, Michigan.



**10 New
Hermetic Condensing Units**

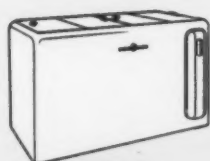
Kelvinator also makes available to you 15 open-type condensing units from $\frac{1}{4}$ to 5 H. P.



PROFIT TODAY...BUILD FOR TOMORROW WITH

Kelvinator

THE NAME THAT SELLS...THE NAME THAT SATISFIES!



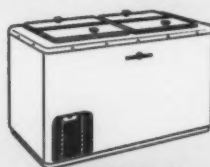
**KELVINATOR
BEVERAGE COOLER**



**KELVINATOR FROZEN
FOOD MERCHANDISER**



**KELVINATOR
WATER COOLER**



**KELVINATOR ICE
CREAM CABINETS**



**KELVINATOR
AIR DRIER**

NEW

PRODUCTS

For further information on any of these products, simply list on the postcard provided in this issue the key numbers of the items in which you are interested. Your requests will be forwarded directly to the companies concerned.

Sealing Compound • • • PK-1

Product: New "Leak-Lock" sealing compound for threaded joints and gasket surfaces.

Manufacturer: Highside Chemicals Co., Newark, N. J.

Features: Product has special polyhydroxylated plastic base that



withstands Freons and other refrigerants. Prevents leaks of Freons, methyl chloride, ammonia, sulphur dioxide, isobutane, oil, air and moisture. Said to set up three times faster than other joint sealing compounds that do not harden; this prevents liquids and gases from pushing through compound before it sets up. Remains plastic enough to allow easy disassembly. Forms an elastic, rubbery film that flexes with vibrations and retains smooth, non-porous skin. Available through refrigeration wholesalers in non-clogging tubes with screw-eye closures.

Liquid Indicator • • • PK-2

Product: New "Diamond I" liquid indicator.



Manufacturer: Imperial Brass Mfg. Co., Chicago.

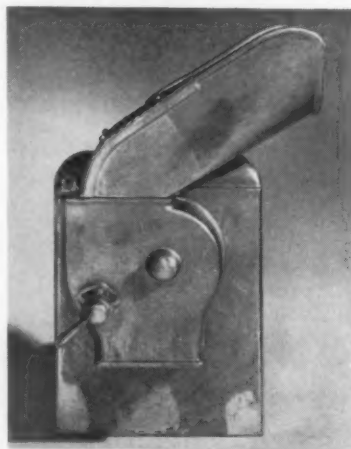
Features: Unit has indicating "Diamond I" which shows at glance

when there is sufficient liquid in system. When glass tube is filled with liquid, "I" on one port is magnified and distorted when viewed from opposite port, giving definite evidence of sufficient refrigerant. Glass tube is right at surface of port where it can be easily seen. Tube is pressure tested Pyrex glass, with indicator baked on. Two seals at each end of tube guard against leakage. Primary seal is non-resilient and made of Teflon, impervious to all refrigerants. Secondary resilient seal maintains constant pressure on glass. Every unit pressure-tested. Available in 1/4", 3/8" and 1/2" sizes with male flare connections on each end and with male flare on one end and female flare on other.

Ice Cube Crusher • • • PK-3

Product: "Kwik Kube Krusher" ice cube crusher.

Manufacturer: Gary Mfg. Co., Los Angeles.



Features: Unit is designed especially to crush ice cubes to snow or small pieces. Crusher, designated as Model A, is said to crush more than 30 lbs. of ice per minute. Constructed of aluminum casting with nickel-bronze alloy grinding rotor. Adjust-

ment lever permits variation in size of crushed ice. Controlled by manual cut-off switch, crusher is powered by 115-volt, 60-cycle, single phase motor rated at about 150 watts. Unit is 22 1/2" high, 14" wide, 17" deep, weighs 47 lbs. net. Shipping weight 50 lbs.

Ice Cream Cabinet • • • PK-4

Product: Self-contained ice cream storage cabinet.

Manufacturer: Ace Cabinet Corp., New Bedford, Mass.

Features: Designed for use in stores with limited floor space. Single-

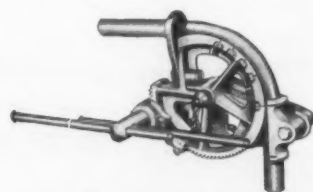


row cabinet is only 20 1/4" wide. Special insulation allows 15-gallon capacity, yet length is only 53 7/8" and height 34 1/8". Constructed of heavy-gauge rust-proofed steel with one-piece stainless steel top. Body finished in baked enamel. Hermetically sealed condensing unit. Kick-plate is perforated to allow maximum ventilation for air-cooled machine. Lids are of flip-flop type with flexible hinges.

Tube Bender • • • PK-5

Product: New heavy-duty tube bender.

Manufacturer: Holsclaw Bros., Inc., Evansville, Ind.



Features: Heavy-duty tube bender is designed primarily for bending quantities of hard-temper tube, steel and iron pipe. Tests have determined that bender will bend hard-temper tubing approximately 25% faster than company's standard tube bender, and give much additional service in this usage. New HD line comes in

five different sizes, ranging from 1½" o.d. through 7/8" o.d.

Cocktail Station • • • PK-6

Product: "Speedbar" cocktail station unit.

Manufacturer: General Dispenser Co., Portland, Ore.

Features: Said to cut mixing costs by two-thirds and have important la-



bor and space saving advantages. Makes use of new Carbomax dispensing head developed especially for the unit. Mounted on flexible, free-swinging plastic hose, dispensing head permits bartender to fill many glasses without lifting them from bar. Simple pull of trigger operates unit. Any beverage having a syrup or concentrate base may be dispensed through Speedbar. Of stainless steel construction, unit is a complete cocktail station with bottle wells, garnish trays, ice bins. Each of 2-gallon containers holds enough syrup for 48 qts. of mix or 750 highballs. Cabinet dimensions 26" x 38½" x 28".

Fountain Equipment • • • PK-7

Product: "Speedserv" three-in-one soft drink dispenser.

Manufacturer: Anderson & Wagner, Inc., Los Angeles.

Features: Originally developed especially for drive-in restaurants, unit collects three soft-drink dispensers in one unit, eliminating necessity for three individually iced dispensers. Larger capacity syrup storage also permits serving of more drinks without replenishing syrup supply. Need for draft-arm station at soda fountain is eliminated by "Speedserv" double-duty faucet. One drink mixing head also supplies fine or coarse stream of carbonated water while another supplies cold, plain water. Can be installed on any standard "Everfrost"

soda fountain. Syrup is cooled to 25 F, eliminating need for ice in drink when carbonated water is cooled to 36-40 F.

Sealing Compound • • • PK-8

Product: "Cauxeal" sealing compound for use in air conditioning field.

Manufacturer: X-Pando Corp., Long Island City, N. Y.

Features: Putty-like sealing material for sealing around window installations and other types of air con-

ditioning work in both home and industrial jobs. Material said to stay plastic at all times and to be workable right on the job with no preparation required for use. Adaptable to contours; expands and contracts with movement. Unaffected by vibration; sticks to all surfaces. May be painted and is not affected by temperature changes. Available in 1 or 5 lb. containers in case lots, or 50 lbs. in single containers.

BUY FROM YOUR REFRIGERATION WHOLESALER

ENDLESS DISPLAY

ENDLESS APPEAL

ENDLESS PROFITS

NDLESS



Set 'em up and start selling! Koch Series 3100 Top Display Cases come in basic 7-ft. and 10-ft. units. Set up in any length to provide an integral, unified, money-making display.

QUALITY — Full porcelain front, top, rear, ends, and interior walls. All welded steel construction. Stainless steel floor. Triple plate-glass front is hermetically sealed.

APPEAL — Triple-glazed Loxit type sliding doors in molded hard rubber frames. Continuous K-Beam fluorescent lighting. Electro-welded steel shelves are adjustable to 3 positions. Fully lined, non-refrigerated storage compartment.

LONG LIFE — Famous, patented, KOCH Miraflex twin-coil cooling system. Insures consistent, trouble-free, economical operation.

KOCH

REFRIGERATORS

NORTH KANSAS CITY 16, MO.

Hermetic Parts • • • PK-9

Product: Sealed unit strainer and dehydrator combinations designed to eliminate capillary problems in hermetic rebuilding work.

Manufacturer: Bullet Products Co., New York City.

Exclusive Distributor: Sealed Units Parts Co., New York City.

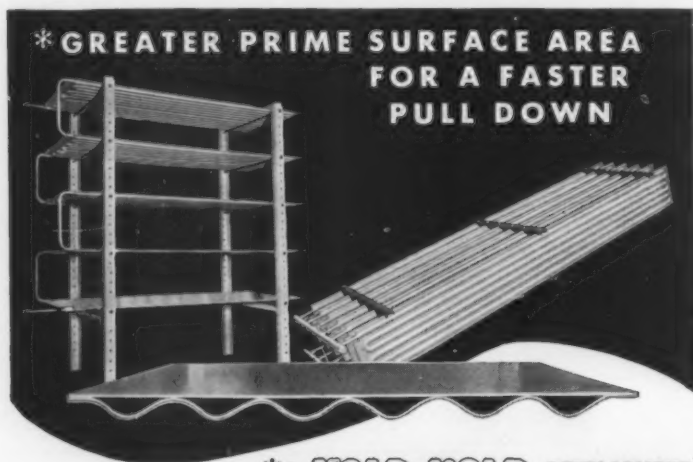
Features: First unit is combination dehydrator and capillary tube, made of seamless tubing filled with 10 grams of silica gel. It is silver soldered to capillary tube and has

choice of flare or sweat inlet. Capillary tube in combination said to be precision drawn to close tolerances and reamed at both ends to prevent interference with restrictor action.

Other combination offers a strainer silver soldered to the capillary tubing, also available with either sweat or flared inlets. New products said to offer exact lengths and inside diameters of capillary tubes and be guar-

**BUY FROM YOUR
REFRIGERATION WHOLESALER**

anteed to fit standard domestic units. Company says 10 years' practical experimentation led to development of these products. Sold in custom-engineered sizes to fit standard installa-



*A KOLD-HOLD DEVELOPMENT

You get dependable refrigeration at lower cost when you use refrigeration plates with "Serpentine" design. These lightweight plates cool large areas quickly yet take up less room than conventional designs. They have no internal tubing or piping so their weight per square foot is extremely low, and installation is simplified.

One outer surface of the plate is flat and the other is embossed to form the channels through which the coolant flows. This provides direct refrigerant contact and the equivalent of 100% prime surface. The size of the refrigerant pas-

sage and the smooth contour of the return bend reduces pressure drop to the absolute minimum. Plates can't possibly become clogged or oil logged.

The flat, top surface of Serpentine Plates adapts itself readily to the construction of shelves and stands and banks to add extra convenience to holding and freezing rooms. Once installed, they provide a lifetime of efficient, dependable refrigeration performance. For proof . . . just ask anyone who uses one of the half million Kold-Hold Serpentine Plates in use today.

See your local refrigeration supplier or write us for details



KOLD-HOLD

protects every step of the way

KOLD-HOLD MANUFACTURING CO., 503 E. Hazel St., Lansing 4, Mich.

Plywood Doors • • • PK-10

Product: Plywood cold storage door line.

Manufacturer: Jamison Cold Storage Door Co., Hagerstown, Md.

Features: Line is now complete for food refrigeration field. Com-



prises walk-in, reach-in, track, double, and vestibule models. Construction is of one-piece front and back panels of marine-quality plastic bonded plywood, and is said to give as much as four times the strength and rigidity of the usual wood door construction. Track model especially built for meat processing and packing fields to facilitate movement of whole sides of beef to and from refrigeration. Double doors solve problem of

moving large truckloads of food between refrigerating and processing rooms. Doors available for any size opening. Vestible model has swinging doors that close while storage door is open. Monopanel construction eliminates warping; special gasketing gives combination plug and compression type seal; unbroken insulation affords added strength and protection; special vapor barrier keeps water out of insulation; special wear-resistant gasket at door sill. Balanced on hinge side to maintain even pressure against door gasket for tight seal.

Reach-In Refrigerator • • PK-11

Product: Glide-door reach-in display refrigerators.

Manufacturer: Sherer-Gillett Co., Marshall, Mich.

Features: Models 45-4SD and 70-



6SD feature glazed display doors that glide on roller bearings; two thirds of display is through top doors at easy eye-and-reach level. Model 45-4SD has four doors, Model 70-6SD has six. Door frames are extruded aluminum; front and all interior lining is acid-resistant porcelain. Shelves adjustable on $\frac{1}{2}$ " centers. New units especially adaptable to packaged displays in retail food markets for self-service operation; for hotels, restaurants, etc. For beverage display 45-4SD holds 37 cases, while 70-6SD holds 55 cases.

Portable Humidifier • • • PK-12

Product: Portable humidifier.

Manufacturer: Kauffman Air Conditioning Co., St. Louis.

Features: Humidifier unit dimensions are $14\frac{1}{2}$ " long, $12\frac{1}{2}$ " wide, $11\frac{1}{2}$ " high. Air output per hour, in cu. ft., is 12,000. Reservoir has a



capacity of $3\frac{1}{2}$ gallons. Rate of evaporation is from $\frac{1}{2}$ to $2\frac{1}{2}$ pints per hour. The unit weighs 19 lbs., with a shipping weight of 24 lbs.

**BUY FROM YOUR
REFRIGERATION WHOLESALE**

Gasoline Torch • • • PK-13

Product: New aluminum gasoline torch.

Manufacturer: Otto Bernz Co., Rochester, N. Y.

Features: Functional design and aluminum construction are said to make torch lighter, more efficient, easier to handle and safer. Basic style change is in stronger, flared tank design, resulting in greater fuel capacity, and weight balance at any fuel level. Simplified pump construction reduces number of parts from 16 to eight, minimizing mechanical



Now

... this **NEW** Precision Testing Gauge Set
joins the "Serviceman" line

Here's the final answer to your testing gauge needs . . . a handsome new pair of precision instruments for use on manifolds and other testing operations.

Down to the last detail these are real testing instruments. They are calibrated to the high accuracy of plus or minus 1% over their entire range and have knife edge pointers to facilitate close reading. Note that one is a compound retard gauge with wide, easily read, one-pound graduations through the important testing range of 0-50 lbs. and one inch graduations in the vacuum range. The other is equally accurate throughout its 300 lb. range.

Only Marsh experience and advanced production facilities could produce testing gauges of this quality at a surprisingly moderate price. Both gauges have the superlative Marsh heavy-duty bronze bushed movements and the Marsh RECALIBRATOR. The $2\frac{1}{2}$ -inch cases are polished brass with screwed and knurled ring, beveled glass crystals, and restriction screw in the connection. Easy removal of the screwed ring provides access to the RECALIBRATOR for quick, accurate adjustment.

Here is the gauge set for the man who wants the ultimate in testing instruments. Ask for new bulletin.

MARSH INSTRUMENT COMPANY, Sales Affiliate of JAS. P. MARSH CORPORATION
DEPT. P SKOKIE, ILLINOIS

MARSH

PRECISION

Refrigeration Instruments

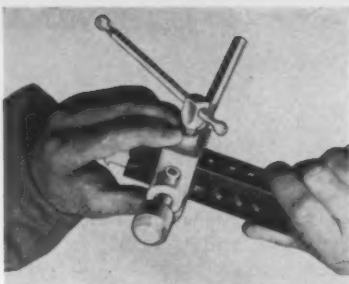
SINCE 1865

troubles and repair costs. More efficient check valve speeds pumping, eliminates need for lockdown after pumping. New safety feature is lock ring on needle valve so it cannot screw out or be forced out by pressure, prevent flame shooting out back of torch.

Flaring Tool • • • PK-14

Product: New Model 410 combination tube flaring tool.

Manufacturer: Parker Appliance Co., Cleveland.



Features: Hand tool combines flaring pin in vise slide on split die

block having series of holes to accommodate $\frac{1}{4}$ ", $\frac{5}{16}$ " $\frac{3}{8}$ ", $\frac{1}{2}$ " and $\frac{5}{8}$ " tubing. Die blocks are hardened for longer wear and black wrinkle protective coating offers positive gripping surface. Flaring pin point has been lengthened so as to handle heavy-wall tubing in $\frac{1}{4}$ " size, and vise screw nose has been modified for self-aligning engagement with block. Vise handle is sliding type.

Duct-Sizing Instrument • PK-15

Product: "Ductulator" circular slide rule for computing duct size requirements.

Manufacturer: Trane Co., La Crosse, Wis.

Features: Instrument consolidates



all necessary charts on easy-to-use multiple scaled circular slide rule. Engineer can get all duct-sizing answers with single setting of Ductulator, which has four colors on four scales. Knowing air volume and velocity, engineer can find friction loss per 100 ft. of duct, diameter of round duct and dimensions of rectangular duct that will carry air load, all with one setting of instrument. Engineer sets any known factor to coincide with known cfm; all other factors may be read with this single setting. Recommended and maximum duct velocities for all general installations appear on reverse side of Ductulator. Instrument priced at \$1.

Gauge Glass • • • PK-16

Product: New "Gage-Tite" gauge glass.

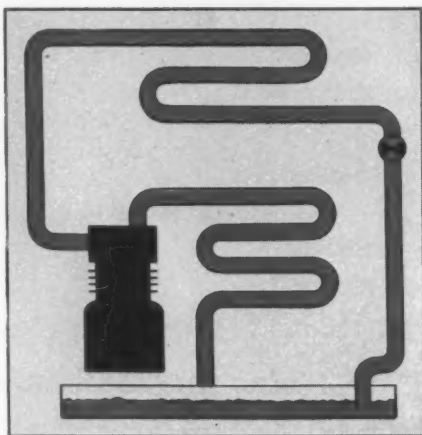
Manufacturer: E. F. Vilter Co., Milwaukee, Wis.

Features: Can be installed by manufacturer as part of unit or in the field as it has soft copper tubing

TRAVELS TO ALL THE WATER

...AND DESTROYS WATER

You're sure to reach all the moisture with Thawzone. It travels to every part of the system. Thawzone circulates through all the kinks, traps and elbows of the unit. Trapped moisture is bound to be reached.



GOES WHEREVER WATER GOES

For "Freons" or Methyl

Any unit using "Freons", methyl chloride, methylene chloride, "Carrene" or isobutane can be dried with Thawzone. Use 1 teaspoonful ($\frac{1}{2}$ oz.) per pound of refrigerant. Use half as much in hermetic units. Thawzone is actually the lowest cost method of removing moisture. Your wholesaler has Thawzone. Highside Chemicals Company, Clifton, N. J.



Callbacks Lose Customers

You cut down customer-killing callbacks by reaching all the moisture the first time. Moisture can remain trapped right in the expansion valve with the usual drying methods. It may break loose 24 hours later. That's a callback you won't have if you use Thawzone.

Only Thawzone Destroys Water

Water is actually destroyed by Thawzone. It's the only product in the refrigeration field that does this. The Thawzone patent includes the destruction of water. This means that the water is gone for good. So, no matter how hot the weather, Thawzone can't give off moisture.

THAWZONE®

The Only Product That
Destroys Water...
and Reaches All of it

that may be sweated or flared. Is claimed to have perfect seal and to show liquid level clearly at all times.



Gauge constructed of brass and copper using Pyrex glass. Head contains ball checks in case of accidental breakage. Pyrex glass is sealed to bellows with silver bearing solder. Will be sold through parts wholesalers.

LYNCH FORMS BRITISH GLASS MACHINE FIRM

Formal announcement was made recently by The British Hartford-Fairmont Syndicate Limited, of London and Greenford, Middlesex, and Lynch Corp., Anderson, Ind., of the formation of a new company, Lynch International Limited.

Recently T. C. Werbe, chairman of the board, and M. H. Pendergast, president of Lynch Corp., were in London for several weeks conferring with directors of The British Hartford-Fairmont Syndicate Limited toward establishment of the new company.

Lynch Corp. is the largest manufacturer of glass forming machines in the world, and a considerable number of Lynch machines are being operated by the British glass industry. The new company will manufacture both machines and spare parts in England.

ARTKRAFT DIVIDENDS

Directors of Artcraft Mfg. Corp., Lima, Ohio, have announced two additional five cent dividends on common stock this year. The first was paid Sept. 28 on stock of record Sept. 20, and the second will be paid on Dec. 20 on stock of record Dec. 8.

RECO IS AWARDED CONTRACTS BY QMC

Reco Products Division of Refrigeration Engineering Corp. has been awarded a contract for the construction of 32 prefabricated freeze-coolers for the U. S. Army Quartermaster Corps.

Twelve of these will measure 10'6" x 29' x 10' high, and 20 will measure 10'6" x 58' x 10' high. These sectional freeze-coolers have been designed to bolt together easily and are equipped with refrigerating

equipment consisting of Freon-12 condensing units, evaporative condensers, and ceiling hung plate banks, to maintain 0 F. temperature for storage of frozen foods.

In addition to production of the stock equipments mentioned above, Reco Products Division has been awarded a development contract by the Army QMC for construction of a unique new cooler insulated with a material which permits only 4" insulation, although zero deg. will be maintained in ambient temperatures as high as 110 F.

REFRIGERATOR HARDWARE

by NATIONAL LOCK

Smartly styled for application on all these refrigeration units

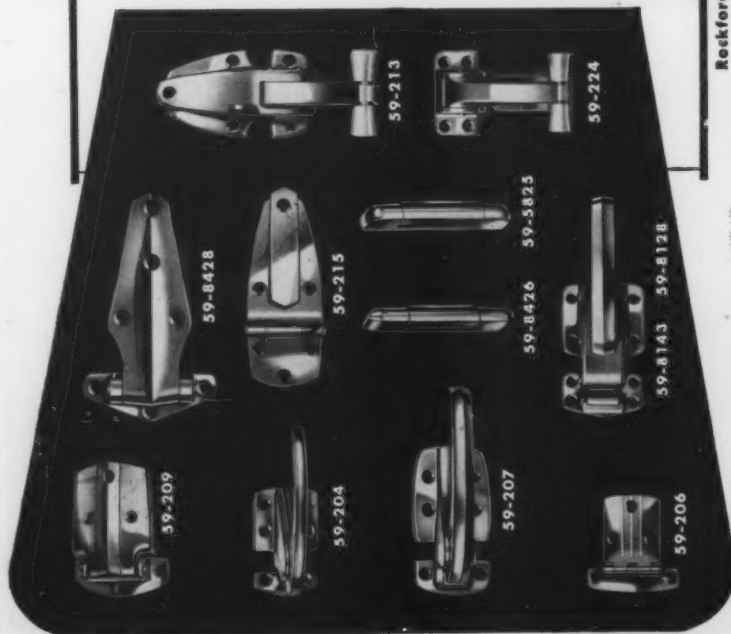
Back Bars • Milk Coolers • Florist Boxes • Low Temperature Horizontal or Vertical Cabinets • Display Cases • Reach-In Cabinets • Coin-Operated Refrigerated Dispensing Machines • Draft Beer Equipment • Bottled Beverage Coolers • Many Other Types of Refrigerating Equipment



Ask Your Jobber for Information and Prices

NATIONAL LOCK COMPANY

Rockford, Illinois • Refrigerator Hardware Division



NEW EMERSON PLANT FOR HERMETIC MOTORS

Plans for a new plant in Bedford, Ind., to produce hermetic refrigeration motors was announced recently by Oscar C. Schmitt, president of Emerson Electric Co., of St. Louis.

Schmitt said that if the international situation should curtail refrigeration production, Emerson would use the plant to produce armaments. He said the company has received a \$100 million order for aircraft armament.

INTERNAT'L REGISTER DROPS METER PRICES

Reduction of price on its DM-6 coin meter has been announced by International Register Co. Increased demand for the product, new efficient machinery, and better production methods have made possible the reduction, it was said.

New price schedule is as follows:

	Single Door		Double Door	
	Old	New	Old	New
1-5	\$13.45	\$11.45	\$16.75	\$14.95
6-11	12.65	10.65	15.95	14.15
12-95	12.20	10.20	15.50	13.70
96 or more	11.95	9.95	15.25	13.45

PHILLIPS TO REPRESENT LA CROSSE IN DENVER

H. A. Phillips of the La Crosse Cooler Co., La Crosse, Wis., has established a sales office in Denver to represent several manufacturers in the Mountain States.

The La Crosse Cooler lines of commercial refrigeration equipment will be made available to dealers in several states in that area, along with other lines, including seating equipment of Sterling Mfg. Co., St. Louis, beer dispensing equipment of Cornelius Co., Minneapolis, Minn.

Phillips has been associated with La Crosse Cooler for several years, since 1948 as sales manager. His coverage of the Denver area will now provide complete national representation on La Crosse products, other offices being previously established in New York, Atlanta, Pittsburgh, Fort Worth and Los Angeles, with two representatives working direct out of the factory in La Crosse, Wis.

MILWAUKEE CONTRACTOR FIRM INCORPORATES

York-Wagner Distributors, Inc., has been formed in Milwaukee, Wis., to deal in "all kinds of air conditioning, air cooling, air cleaning, refrigerating, heating and similar type of equipment and machinery and facilities." The firm has a capital stock of 10,000 shares of common at a par value of \$10 per share. Incorporators are Richard G. Lynne, John A. Nienas and Arthur G. Pope.

G-E POTENTIAL TWICE WAR-TIME LEVEL

In the event of all-out mobilization, the General Electric Co. is in a position to produce substantially double what it produced during World War II, Charles E. Wilson, G-E president, declared recently.

He said that with its postwar expansion program completed and production currently at record-breaking levels, the company is far better prepared than at any other time in its peacetime history to meet demands made upon it by the Armed Services.

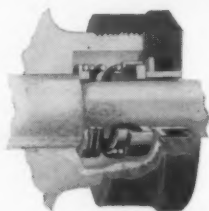
Wilson revealed that because of the current emergency, the company has accelerated its mobilization planning, an activity which was resumed shortly after the end of World War II.

ROTARY SEAL

REPLACEMENT UNITS

UNIT NO.

3280

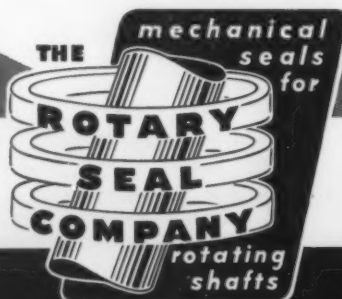


for Commercial, Semi-Commercial, Air Conditioning and Household Refrigerator Compressors . . Tested by time, proved by performance over 19 years . . *Simplicity in construction—easy installation—efficient operation—economy—you get every one of these important features in ROTARY SEALS!*

MORE
THAN
900
MODELS

AT
ALL
LEADING
JOBBER'S

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FINANCING . . .

Continued from page 29

a down payment as possible should be encouraged, since this gives the purchaser a greater immediate equity in the equipment, and reduces the financing charges. At least 10% of the cost of the equipment, plus the installation charges, is required, and customary practice is to ask for 20% down payment.

In financing sales on a time-payment basis, the distributor gets (1) the required down payment and (2) as much credit information on the purchaser as he can obtain. He sends

supplying the financing service is small and a lower percentage is required than is necessary in financing a small amount.

In other words, the cost of providing an installment finance service over a period of months is constant, regardless of the amount of money involved. It's a good idea—and good business—to compare finance charges offered by lending institutions on various amounts to be financed, especially in the price ranges covering most kinds of commercial refrigeration and air conditioning equipment.

Under most financing arrangements, the distributor or dealer agrees to repurchase the installment paper sold by him that becomes in default after a specified period. So it's important to get full credit information on prospective purchasers, and rely on the judgment and experience of the finance company in deciding which buyers are good credit risks. Full cooperation with the finance company in the handling of delinquent accounts, too, is equally important.

Most finance companies are willing



this data to the lending institution for credit approval. In some cases, this information is not sufficient for the lending institution to judge whether or not credit can be granted, particularly when the amount involved is fairly large.

Getting a credit report on the customer speeds up OK's in financing retail sales; otherwise the lending institution will arrange for this service.

The installment contract may be drawn for anywhere from six months to 36 months, depending upon the amount to be financed and the paying ability of the purchaser. Paying ability can usually be determined by simply asking the purchaser how much he feels he can afford to pay each month. The larger the monthly payments, the sooner he gains full title to the equipment.

Charges for this type of financing vary with the fluctuating cost of money. Where the amount to be financed is large, the relative cost of

Easy To Install . . . Easy To Service



STEP 1. For quick service open one airplane type fastener.

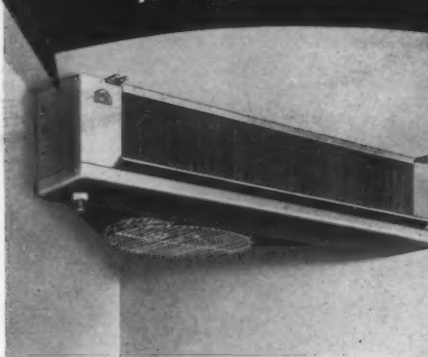


STEP 2. Pull electric motor cord from outlet.



STEP 3. Remove fan and motor assembly for easy access to expansion valve and coil interior.

The New
RECORD DELTA
Pat. Pend.
A CORNER COIL



It's in the Corner . . . It's Out of The Way . . . It Uses No Valuable Storage

Engineered to give high BTU performance with comparatively low air quantities, the New Delta Coil has been field tested in many unusual applications. Here is a coil that wins instant praise from refrigeration contractors and service men alike because it is easy to install and easy to service. Fitting snugly into the corner, even the largest sizes take no usable space. An inherent feature of all DELTA coils is the exceptionally low air velocity from the face of the coil—assuring successful operation in all types of produce cooling and storage. For all applications above 34° F.

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RELATIVE HUMIDITY
and TEMPERATURE
... RELY ON



Accurate control and operation of heating and air conditioning installations are both essential in the attainment of peak efficiency in industrial operations. Be sure of these facts with Bendix-Friez precision instruments built to the most exacting standards by the foremost makers of weather instruments.



BENDIX-FRIEZ

Model 185

Precision Humidity and Temperature Indicator

Hand-operated and calibrated to professional standards of accuracy by the maker of the world's finest weather instruments. Handsome, modern case—4" high, 5½" wide, 1½" deep.



BENDIX-FRIEZ

Model HA/2

Hand Aspirated Psychrometer

Accurate readings obtainable without special skill. Psychrometric readings can be taken at any point desired however inaccessible.



BENDIX-FRIEZ

Model 160

Portable Humidity and Temperature Recorder

3" x 5" charts, 10 or 30 hour records. Modern design . . . handy for small space and difficult locations . . . built to meet unusual conditions

WRITE:

FRIEZ INSTRUMENT DIVISION of

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Baltimore 4, Maryland

Export Sales: Bendix International Division
72 Fifth Avenue, New York 11, N. Y.



to take full responsibility for collections, but because of the distributor's or dealer's close relationship with most of his customers, one of his salesmen often can do a lot more than a finance company collector when it comes to bringing a delinquent account up to date. Besides, keeping a customer's good will is highly important, and showing a personal interest in the customer's activities—and perhaps a sympathetic attitude toward his problems—is one excellent way of accomplishing this.

The financing of retail sales of commercial refrigeration and air conditioning equipment on the meter-plan basis has been increasingly popular—in fact, a number of highly successful dealers handle all their merchandising on this basis. Especially in dealing with smaller merchants, it gets away from two major barriers to sales—the large down payment usually required, and lump-sum monthly payments.

Nobody argues with the fact that it's easier to make 30 small daily payments than it is to pay down a large sum every month. This fact—and the fact that meter-selling dramatizes the

"savings" story on commercial equipment—have been important factors in the popularity of this method of sales financing.

The meter plan allows equipment to be sold to practically all classes of prospects, some of whom might have considerable trouble meeting the requirements of other time-payment plans. The buyer of the equipment signs a standard time-payment contract, agreeing to deposit a specified sum in the meter every day. If he fails to make the daily payments, the equipment doesn't operate; for the meter is installed in series with the compressor motor.

Money deposited in the meter goes entirely for payments for the equipment. At the end of the month, the

INFORMATION relating to temperature, humidity, air movement, and apparatus to obtain desired results in breadmaking within the refrigeration range is presented in "Refrigeration in Breadmaking", the latest Application Data Section issued by American Society of Refrigerating Engineers.

Methods of applying refrigeration to the storage of ingredients, accessories, and wrapping machines are also considered along with dough mixer cooling, ingredient water cooling, and air conditioning for fermentation rooms and bread coolers.

The six-page pamphlet was written by W. J. Hoffmann, president of Arctic Engineering Company, Inc., New York City. Copies may be obtained from ASRE headquarters, 40 West 40 St., New York 18, N. Y., at 40c each.

customer is given a receipt for the amount he has paid in.

Although use of the meter plan—often in connection with "no down payment" or a minimum down payment—encourages prompt, regular payments, firm credit control must still be exercised. The meter can be an important sales tool—but simply installing a meter does not improve the customer's credit.

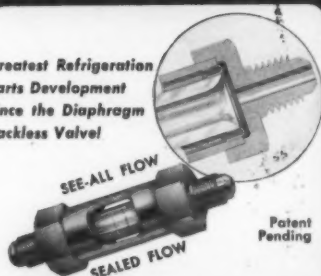
Most firms using the meter plan prefer to have their own salesmen do the collecting, because it provides an opportunity to see the customer regularly and be first to know about any new equipment he's likely to be buying.

Most dealers now sell for cash and on time-payment contracts. In using the meter plan they still retain both of these plans, and add a third plan to get "plus" business.

NEW Positively Leakproof!
DIAPHRAGM PACKLESS

SEALFLO
LIQUID INDICATOR

Greatest Refrigeration
Parts Development
Since the Diaphragm
Packless Valve



Diaphragm-sealed, no packing to leak, no springs to weaken, Sealflo saves on service calls, liquid losses. Pyrex gage glass floats, fused at ends to flexible alloy diaphragm that's sealed to viewing tube. Magic Line viewer.

Four practical sizes . . . see your
wholesaler. Write for literature
and prices.

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WHAT DO YOU KNOW . . .

Continued from page 31

summarizing double-entry accounts and equip yourself so as to be able to analyze and make proper managerial use of your financial statements.

Many operators of small businesses unfortunately fail to see the benefits to themselves in making expenditures for accounting and financial analysis services.

A common practice of such concerns for determining their financial condition is to compare cash receipts with disbursements for a specified period. If a surplus of cash is found to exist, the business is considered to be "in the black," although no attempt may have been made to keep or to examine details of records and operations.

Even where operating statements are attempted, many businesses are too easily satisfied with superficial accounting records and statements. Modern business operation and competition require exact knowledge of what takes place and the results of transactions. This explains the acute need for reliable financial statements and a clear analysis of their meaning.

BAKING CO. CONDITIONS THIRTY MORE STORES

Ebinger Baking Co. of Brooklyn has ordered 30 packaged air conditioners as part of a sweeping remodeling program that will bring approximately half the chain's stores up to the very latest standards for store modernization.

In 1949, four Typhoon air conditioners were ordered as the first of the Ebinger stores were modernized, and this year four more stores have been similarly renovated and air conditioned. This late-season order for 30 units indicates that from the results obtained by the first eight units, the firm is convinced of the value of air conditioning for profitable summer operation. Next year, it is expected that the remainder of the stores will also be renovated and air conditioned.

Most of the units ordered so far by Ebinger have been of 3 and 5 ton capacity. The majority of the 5 ton units installed have been connected to evaporative condensers, and in other cases cooling towers have been used.

Each store is cooled with one unit, which is located in a storage room next to the conditioned area. The installation has been standardized so that in each case a distributing duct runs along above shelves located behind the counter.

Arthur C. Ebinger, president of the baking company, says that he is convinced of the need for air conditioning in modern retail stores. "The stores we have air conditioned," he says, "showed immediate and substantial sales increases after the units

were installed. We have also found that the baked goods stay fresher, especially during very warm weather."

NAMED DISTRIBUTOR

The G. W. Onthank Co., Des Moines, Iowa, has been named the new distributor in that area for Admiral Corp. This territory was formerly handled by the Bi-State Distributing Corp. of Omaha, which remains as distributor for the Nebraska area.

FOR DEPENDABLE SERVICE

Streamline WROUGHT COPPER Refrigeration FITTINGS

STRONG • DURABLE • NON-POROUS

A FULL LINE
IN SIZES
1/8" O.D. TO 4 1/2" O.D.

As a Refrigeration Service Engineer, you are naturally proud of your reputation as a careful workman specializing in precision-like installations.

STREAMLINE Wrought Copper Fittings are designed to help you in this respect. Each fitting from the smallest (1/8" O.D.) to the largest (4 1/2" O.D.) is manufactured to close dimensional tolerances and rigid specifications which are absolutely essential to assure a perfect trouble-free job.

STREAMLINE Wrought Fittings from 2 1/2" O.D. up are packaged in individual cartons. They are kept factory-perfect right to the job. Your investment is protected.

See your wholesaler today.
Put your next Job in STREAMLINE.

MUELLER BRASS CO.
PORT HURON, MICHIGAN



ABOUT *People*

W. L. Sneltjes has been appointed supervisor, advertising and sales promotion, for General Electric Co.'s air conditioning department. He succeeds Fred Keswick, who has recently joined the advertising staff of the appliance and merchandise



department at Bridgeport. Sneltjes will supervise advertising and sales promotion of G-E automatic heating equipment, the G-E "Air-Wall" heating system and residential year 'round air conditioning. Prior to his appointment, he was advertising and sales promotion manager of the Williams Oil-O-Matic Heating Division, Eureka-Williams Corp., Bloomington, Ill.

Leonard C. Bastian, technical director of the Air Conditioning and Refrigerating Machinery Association during the past 12 years, has joined the engineering staff of Philco Corp. **J. R. Schreiner**, formerly associated with the research laboratory of Pennsylvania State College, has joined the ACRMA staff at its Washington headquarters as staff engineer.

William R. Funk has been appointed southern regional sales manager of Acme Industries, Inc. He will locate in one of the southern states but at present is working from Acme's home office in Jackson, Mich. Before joining Acme, Funk was



with Frigidaire and Carrier as a sales engineer, and from 1940 to 1946 was with Chrysler Airtemp as district engineer, regional engineer, and re-

gional sales manager. Most recently he was with Willard Sales and Service, Inc., Worthington distributor in Philadelphia, as vice president in charge of sales, and with National Sheet Metal Co., a subsidiary of that firm.

T. O. Lester has been appointed sales assistant of the power take-off division of Kold-Hold Mfg. Co. as



a move in the establishment of a sales organization for a new compressor powering unit for trucks soon to be announced by the company. Lester, who has been a field representative for Kold-Hold, has been in refrigeration work for 24 years in the Chicago area, and was with Batavia Body Co. prior to joining the Kold-Hold sales organization.

E. A. "Terry" Terhune has been appointed vice president in charge of sales for Fogel Refrigeration Co., Philadelphia. Terhune started with Frigidaire's New England distributor in 1926, and in 1929 organized Appliance Engineering Co. of Boston as



a major appliance distributor. He was for 10 years national sales manager of the electric refrigeration division of Servel, Inc. After the war he organized General Vending Machine Corp. of Chicago, producing bottle vending machines. This company is now being operated by his son, Terry, Jr., as general manager. Terhune plans to expand Fogel's operations through appointment of distributors and dealers in several areas.

Personnel appointments incident to a new de-centralized production and sales setup of the Swift Mfg. Co., Detroit, are announced by K. M. Schaefer, vice president and general manager. **Fred W. Fisher**, veteran production executive, has been named head of the Swift stamping division; **Joseph Rumpf** has been named head of the Swift machine division; **W. W. Pound**, has been named Ohio representative for the firm, bringing the national total of sales representatives to 11 men. His headquarters will be at Perrysburg, Ohio. Other staff appointments at the Hazel Park plant include **Robert H. Wiegand, Jr.**, purchasing agent; **Leonard J. Vick**, head of accounting and office management; **George J. Sullivan**, traffic manager and **Alfred S. Szandzik**, process engineer.

W. V. Davidson, Jr., has been elected executive vice president of W. B. Connor Engineering Corp., manufacturers of Dorex activated carbon air recovery and purification equipment and Kno-Draft adjustable air diffusers.

R. A. Haworth has been appointed manager of the Dallas district sales office of Cutler-Hammer, Inc. As manager of the Dallas office, Haworth will also supervise the company's Tulsa, Houston and Midland sales offices in the sale of Cutler-Hammer products. He has been with the company since 1934, working first at the factory and later in the New York City, Philadelphia and Baltimore sales offices.



Thomas J. Lopiccicolo has been appointed general sales manager of the refrigeration division of Bowser, Inc., in addition to his former duties as chief engineer of the division. He will coordinate all technical sales and application engineering. **John Zaleski** has been named exclusive distributing agent for government sales for the division, and **John Gelb** has joined the division as research and development engineer.

In an expansion of the engineering department of Frigidaire Division of General Motors Corp., **E. F. Schweller**, manager of the household engineering department, and **J. L. Gibson**, manager of the commercial refrigeration and air condition-



J. L. GIBSON



E. F. SCHWELLER

ing engineering department, have been named assistant chief engineers. **F. I. Rataiczak** has been appointed manager of the household engineering department to succeed Schweller, and **M. W. Baker** succeeds Gibson in the commercial and air conditioning engineering post. **R. J. Woxman**, section engineer, has been transferred to Frigidaire, Ltd., Canadian subsidiary, and **H. W. Guenther** succeeds him in charge of process specification activities. Chief Engineer **S. M. Schweller** continues to head Frigidaire's over-all engineering operation in Dayton.

C. Ward Stoner, since 1944 chief engineer of Ben-Hur Manufacturing Co., Milwaukee, manufacturer of farm and home freezers, has been elected vice president in charge of engineering of the company. In making the announcement, Henry A. Uihlein, Ben-Hur president, said that Stoner will have charge of a new program to expand Ben-Hur engineering facilities to meet the future needs of factory production and field demand for freezers.

Selection of regional managers for the four sales regions of the United States has just been announced by H. M. Brundage, manager, sales division for the air conditioning department of General Electric Co. The regional managers and their headquarters are as follows: eastern region, **H. N. McMenimen**, 570 Lexington Ave., New York City; central region, **S. C. Bernhardt**, The Merchandise Mart, Chicago; southern region, **E. J. Guillory**, 511-513 International Trade Mart, New Orleans;

western region, **L. M. Larkin**, 235 Montgomery St., San Francisco. Functions of the regional managers will include supervision of the company's sales representatives in their contacts with the franchised distributors and contractors in their particular region.

Franklin E. Howell has been named freezer sales manager for Kelvinator Division of Nash-Kelvinator Corp. to succeed **R. B. Trick**, who has been named manager of Kelvinator's Seattle zone. Howell has been field representative for the Leonard division for the past three years.

Five appointments in the Schenectady large motor and generator engineering division of the General Electric apparatus department have been announced by Earle S. Henningsen, manager of engineering of that division. **Bascom H. Caldwell, Jr.**, has been named assistant manager of engineering and **D. E. Brainard**, **Howard D. Snively**, **Robert V. Shepherd**, and **Robert W. Wieseman**, division engineers.

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under toughest operating
conditions.



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631 W. Jackson Blvd., Chicago 6, Ill.

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TECHNIFLEX REFRIGERATOR DOOR GASKETS

the most complete line of
replacements
gaskets

A door gasket for almost every household refrigerator. Made of natural rubber to meet the most rigid specifications of nationally known appliance manufacturers. Non-staining, odorless, non-toxic, oil resistant, weather and tear resistant for long life. Discuss your refrigerator replacement problems with us. Let us show you why "quality and Techniflex" mean the same thing. When your profits depend on quality... it pays to depend on Techniflex.

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DEPT. 61, PORT JERVIS, N. Y.

CONTRACTORS

NEWS • ACTIVITIES • PLANS

Contractors to Plan for "M" Day At Annual Meeting Nov. 15-16

THE probable impact of governmental controls on the operation of the refrigeration contractor's business has been established as the theme of the fourth annual convention of the Refrigeration and Air Conditioning Contractors Association, to be held in Hotel Lafayette, Long Beach, Calif., on Nov. 15 and 16.

Neal S. Templin, executive secretary of the Refrigeration Contractors Association of Southern California, and R. W. Noll, national president of RACCA, are working out a program of talks and discussions designed to equip contractors for what they believe will be the "regulatory" days ahead.

Although the complete program of topics and speakers was not determined at the time this issue of **COMMERCIAL REFRIGERATION** went to press, Chairman Templin reports that the general theme of "Be Ready for 'M' Day" will be the subject of the RACCA's open meeting, Nov. 16.

Speakers from governmental bureaus who are "in the know" will discuss and answer questions by contractors on such subjects as priorities control, inventory control, wage and price controls, and the overall manpower situation as it may be expected to affect refrigeration and air conditioning contractors. Credit controls, a potentially important subject, also will be discussed.

A representative of the Department of Defense will discuss the overall mobilization picture, on which a clearer picture is expected to be available after the elections of Nov. 7.

Problems of military procurement, and how the contractor can expect to fit into this picture, also will be presented and discussed.

Representatives of the National Production Authority and other Department of Commerce agencies concerned with this country's defense effort will be attending a meeting in Los Angeles the day prior to the RACCA meeting, and it is hoped that many of them will find it possible to stay over an extra day and present their views to the contractors' assemblage.

Chairman Templin says he has been assured that men will be present to discuss most of the defense problems that the contractor segment of the industry will have to cope with, and he assures that a most interesting and worthwhile program will result.

The opening day of the RACCA meeting, Nov. 15, will be turned over entirely to business matters, with a meeting of directors to discuss plans for the coming year and to nominate and elect directors from which the slate of officers to serve during the 1951 term will be chosen.

Roger O'Donnell, executive secretary of RACCA, has been on the coast during the past weeks to assist Templin and Noll in the preparation of the program for the meeting.

ALBANY ORDINANCE CURBS COOLING WATER USAGE

An ordinance restricting the use of city water for air conditioning purposes has been adopted by the city of Albany (N.Y.) and made effective immediately.

Under provisions of the ordinance, city permits are required for the installation of any size air conditioning equipment. Air conditioning systems of 5 tons capacity or less may use water-cooled condensers as long as they do not use more than 1.5 gal-

lons of city water per minute per ton of refrigeration.

Systems of more than 5 tons capacity are required to be equipped with water conservation devices and not use more than .2 gallons of city water per minute per ton. All installations of 50 tons and over will be metered separately. All units connected to a water conserving system will be subject to demand charge of \$2 per ton in addition to the regular water rates for the season extending from May 1 to Sept. 30.

Units of less than 5 tons capacity that are not connected to water conserving equipment will be charged \$10 per season over the regular rates. Equipment now installed must comply with the requirements of the ordinance before May 1, 1951.

At his discretion, the commissioner of water and water supply can order equipment of less than 50 tons capacity to be separately metered, if he ascertains that the system is using more than the allotted amount.

Violators of the ordinance are liable to a fine up to \$50 per day for every day of violation; and repeated violations may result in having water supply to the equipment shut off.

Refrigeration contractors, after notice of completion of an installation, are relieved from any implied responsibility for the system's operation.

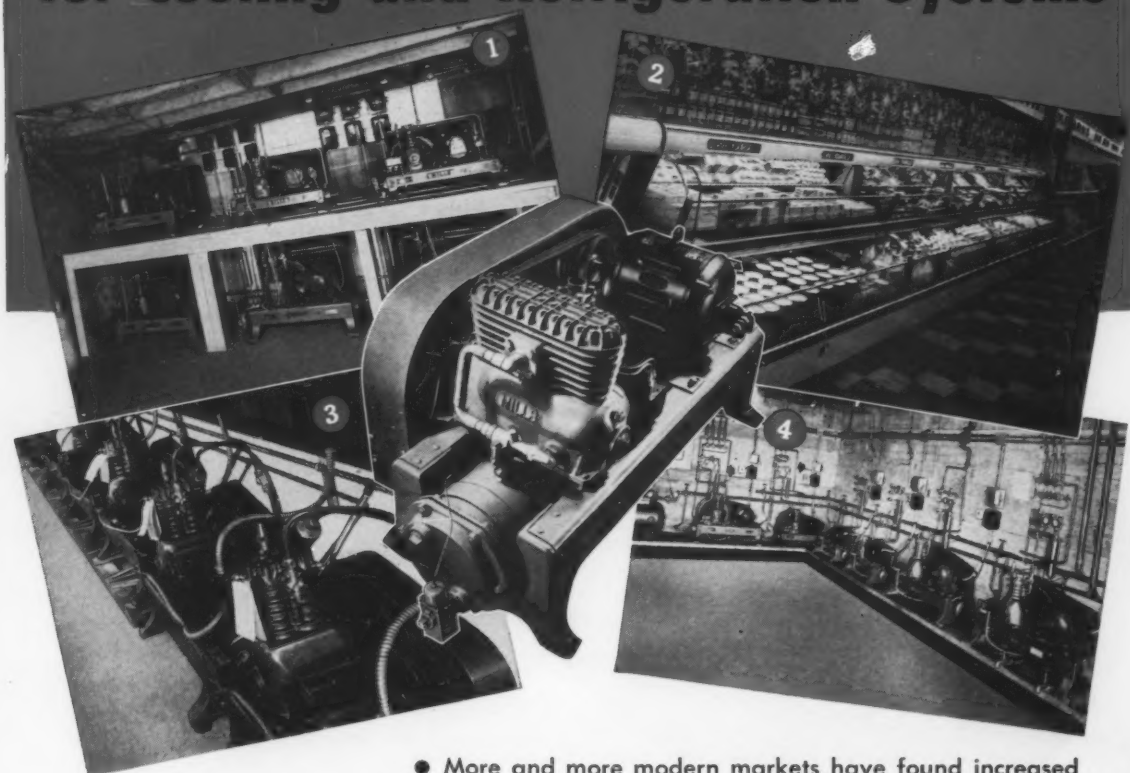
FLYNN IS NEW V.P. OF SAN FRANCISCO GROUP

At a special meeting of the board of directors of the Refrigeration Contractors Association of Northern California, E. D. (Ed) Flynn was elected executive vice president to succeed Zed Jones, who had resigned earlier to become associated with Silver-Stahl Corp. as sales promotion and advertising manager.

Flynn has been in the refrigeration field since 1925, being originally with Cochran and deJong, San Francisco. In his experience he has been a sales engineer, sales manager, refrigeration engineer, design engineer of refrigerated fixtures and extended surface low sides, as well as a manufacturer of refrigerated display fixtures of his own design, and of self-service freezer cabinets.

He is a member of ASRE and is a registered and licensed professional engineer in the state of California. He also is licensed as a refrigeration contractor and as a heating, ventilating and air conditioning contractor.

MORE SUPER MARKETS USE ★ **MILLS** **for Cooling and Refrigeration Systems**



1 Partial installation of 15 Mills Condensing Units, Pangle's Master Market.

2 View of typical modern "self-service" cabinets refrigerated by Mills Units.

3 Nine Mills Condensing Units in new Serve-All Super Market, Lincoln, Nebraska.

4 New Kroger Super Market, Dubuque, Iowa installed a total of 11 Mills Condensing Units.

● More and more modern markets have found increased sales appeal in refrigerated equipment, display cabinets, and air-conditioning. And for such operations Mills dependable Condensing Units have become increasingly popular.

Mills Units provide the finest in economical service and flexible adaptability. Capacities are available in a wide range of air-cooled, water-cooled, and combination air-water-cooled types. Write today for 60 page Catalog 204-1 illustrating the complete line.

MILLS

COMPRESSORS AND CONDENSING UNITS

MILLS INDUSTRIES, Incorporated
4100 Fullerton Avenue • Chicago 39, Illinois

**THESE OILS
DO MORE...**

**YOU
MAKE
MORE**



**TEXACO
CAPELLA OILS** do more . . . they keep compressors clean for highest efficiency, and hold maintenance costs down. Highly refined, they are stable, moisture-free lubricants that do not react with refrigerants . . . have great

resistance to carbon, gum and sludge formations.

You make more . . . *Texaco Capella Oils* assure trouble-free and economical compressor operation. This means satisfied customers, more business for distributors, dealers and service engineers.

Texaco Capella Oils are available in every needed viscosity, in 1-quart, 1-gallon, and 5-gallon sealed containers. Leading compressor manufacturers recommend *Texaco Capella Oils*, and experience everywhere indicates you'll do a more profitable business with these fine oils.

The Texas Company, 135 East 42nd Street, New York 17, N. Y.



TEXACO Capella Oils

FOR ALL AIR CONDITIONING AND REFRIGERATING EQUIPMENT



TUNE IN . . . TEXACO STAR THEATER starring MILTON BERLE on television every Tuesday night. See newspaper for time and station.

THE PRACTICAL Refrigeration Applications MANUAL

... by Harold Smith

THE Practical Refrigeration Applications Manual extends a helping hand to those refrigeration and air conditioning men who occasionally encounter field engineering problems too tough for them to handle. Space limitations make it impossible to give complete detailed information covering each step necessary for the installation or erection of refrigeration equipment, insulation or fixtures. It is necessary to assume that those readers who request assistance with their problems are familiar with these basic fundamentals. If they are not, it is suggested that they seek this advice from their sources of supply when purchasing the materials which they intend to use on the job. Most suppliers are equipped to furnish such information. Readers are urged to submit their problems to this department. Each letter of inquiry will be answered personally by the author. The most interesting ones will be published in these columns. All problems should be clearly and completely stated and addressed to: **COMMERCIAL REFRIGERATION AND AIR CONDITIONING, Manual Dept., 1240 Ontario St., Cleveland 13, Ohio.**

PROBLEM

"**W**E are figuring an air conditioning job (rough sketch enclosed) in which the architect has laid out the system calling for the use of individual room air conditioners with chilled water, to be located one each in the television room, the bar room, the billiard room, the card room and the poker room. There has been no allowance made for fresh air.

"After we called this to the attention of the architect he added an exhaust system, comprised of an exhaust fan connected to duct work with intakes in the ceiling of each room, the system to be operated manually. If this system is employed, what happens to the control of temperature and relative humidity during the sporadic manual operation of the exhaust system.

"We presented a plan employing tow eight ton package units to supply air through a duct system and ceiling type diffusers and introducing outside air through the air conditioners automatically. This was rejected and we were informed that their engineers had told them their system would work.

"We are reluctant to bid the job as per plans, since heavy smoking will occur in these club rooms and the specifications clearly state that the contractor guarantees to install a system that is workable and satisfactory.

"Are we wrong on this? Is there any chance for their system to give satisfaction?"

SOLUTION

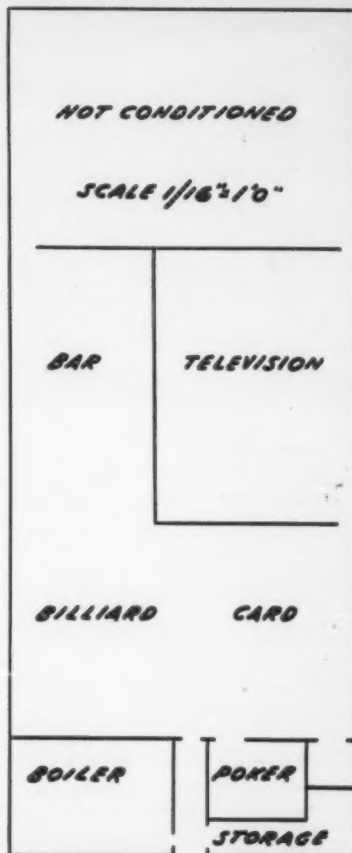
THERE is no reason we can see for too much difficulty with the system set up by the architect for chilled water air conditioning with individual units in each room, provided adequate capacity is figured in the individual units and the entire system as a whole unit.

While you do not give complete details we assume this is some kind of casino or club which may be heavily patronized. Under such conditions a supply of fresh air is absolutely necessary to eliminate unpleasant, foul odors and tobacco smoke. For such an installation to be entirely satisfactory under peak load conditions the addition of fresh air is essential, as well as an exhaust air system. It will be next to impossible to exhaust much of the foul air unless it is replaced by fresh air.

Our suggestion is that provision be made for the automatic supply and discharge of air from the rooms to be conditioned. A 25% air change, operating automatically, should provide the change of air necessary to produce satisfactory conditions. Unless the air change is automatic the use of the system probably would be irregular,

with too much air change at times and not enough at other times, causing wide variations in the cooling load requirements.

If a 25% air change is added to the system, an increase in cooling load capacity must be added to the equipment to cover the increased load requirements. Without an automatic air change incorporated in the system, we do not believe you could



guarantee satisfactory performance or results, except on the basis of no air exchange whatsoever. Then you could guarantee temperature and humidity but would have a very unfavorable air condition when the rooms were in heavy use.

Supplying new air and discharging foul air are basic requirements for air conditioning of rooms occupied by crowds of people. We believe with a little patience you can convince the architect of the absolute need of automatic air change for a satisfactory installation.

PENN SWITCH BOSTON OFFICE IS MOVED

Boston district office of Penn Electric Switch Co. has been moved to 313 Washington St., Newton, Mass., a suburb of Boston.

Gamblers Play in Cool Comfort At Conditioned Nevada Resort



Air conditioning outlets blend inconspicuously with the decor of the "Painted Desert Room" of the Desert Inn, one of Nevada's newest and plushest gambling resorts. The air conditioning system is designed to keep this room smoke free even under the most congested conditions. The Inn's casino, bar, and cocktail lounge also are conditioned.

AIR conditioning and refrigeration figure importantly in the operation of the Desert Inn, Nevada's newest and most pretentious resort hotel, although little mention of them has been made in the stories that have appeared in newspapers and magazines throughout the country.

Certainly the air conditioning and refrigeration problems encountered in the project were more involved than

had a site located in a more temperate zone been selected. The Las Vegas portion of Nevada at times climbs to well over 100 F in the summer, and descends to around freezing in the winter.

Drayer-Hanson, Inc., of Los Angeles, manufacturers of heat transmission equipment, engineered and built the air conditioning and refrigeration equipment installed in the hotel. All of the hotel rooms are on a hot and cold water system with individual room control. D-H Turbo-Flo water chillers are used for cooling.

Condensers and air handling equipment also were supplied by Drayer-Hanson. They are used to cool and heat the main dining room, casino and bar. Compressors are by Carrier. Installation was by the Western Heating and Ventilating Co. of Las Vegas, under the supervision of Walt Brown.

Ventilating has been designed to furnish 100% fresh air for the casino and main dining room at all times, unless the outside temperature reaches 100 F. Then 25% of the air is recirculated.

The glass-enclosed Sky Cocktail Lounge, located atop the Desert Inn, allows a panoramic view of the surrounding area as far as the eye can see—but it also develops a terrific

heat load during the hot summer days. However, the direct-expansion air conditioning system, designed by Drayer-Hanson, maintains an even temperature of approximately 74 F regardless of outside variations of heat and cold.

Each of the 300 hotel rooms has outside exposure and individual thermostatic control of temperature; most of the rooms in the main building have a private sun patio. All rooms are air conditioned with D-H's new Coolroom units. These are propeller fan air conditioning units and are said to be unusually quiet—more so, in fact, than the standard hotel duct system.

As much power is used for the Desert Inn alone as was supplied to the entire Las Vegas area on the day Boulder Dam was begun.

—J. C. Noziger

ADVISORY GROUP FOR ASHVE SHOW NAMED

Lester T. Avery, president of American Society of Heating & Ventilating Engineers, is chairman of the advisory committee of the 10th International Heating and Ventilating Exposition, it has been announced. The exposition will be held at the Commercial Museum, Philadelphia, Jan. 22 to 26, 1951, coincident with the 57th annual meeting of ASHVE, which is sponsoring the display.

Other ASHVE members named to serve on the committee, as thus far announced, are: Charles S. Leopold, member of the council; John W. McElgin, president Philadelphia chapter; Edward L. Crosby, president Baltimore chapter; H. J. Kirkendall, president Pittsburgh chapter; Carl F. Kayan, president New York chapter; H. P. Gant and Merrill F. Blankin, past presidents. A. J. Nesbitt, general chairman of the annual meeting, is also a member of this group.

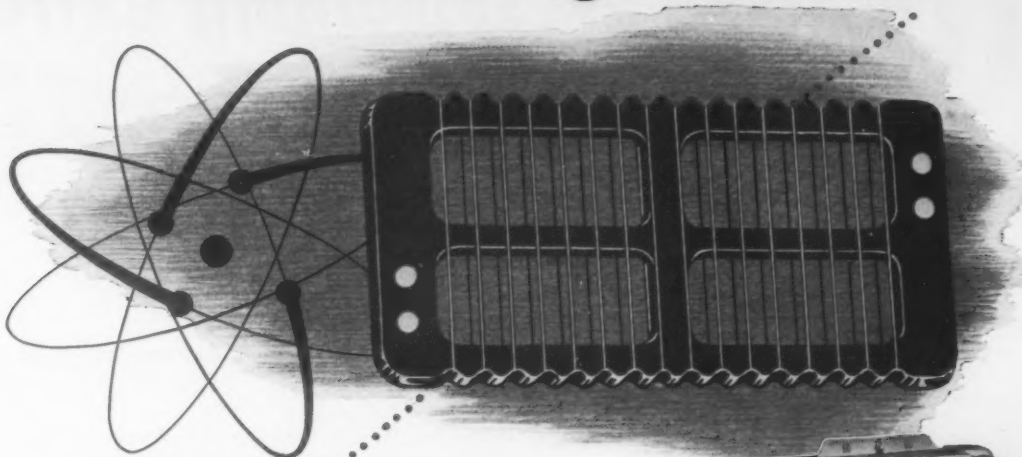
JOHN MADDEN ADDS TO DELAVAN COVERAGE

Delavan Mfg. Co., Des Moines, Iowa, has announced the appointment of John J. Madden, 212 Madison St., Dedham, Mass., as sales representative in the New England territory on Delavan industrial and air conditioning nozzles and agricultural nozzles and accessories. Madden has been handling the Delavan line of refrigeration parts.



All that is visible of the separate Drayer-Hanson "Coolroom" units which condition each of the hotel's 300 guest rooms are the outlet and return grills and the thermostat.

You'll Get Best Results with Honeywell Electronic Air Conditioning Control



a simple coil of wire does it all
NO MOVING PARTS



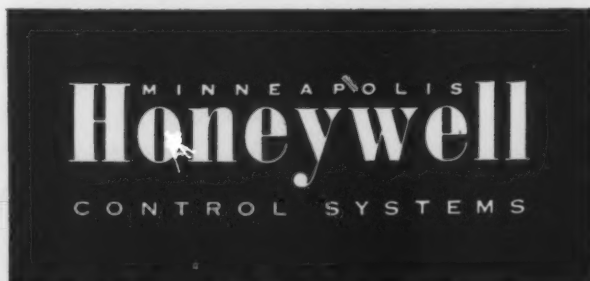
New Honeywell ELECTRONIC Thermostat

WHEN you use Honeywell Electronic Control for your heating, ventilating or air conditioning installations, you know your equipment will produce the finest results of which it is capable. Electronic Control is up to one hundred times more sensitive than existing types of control, and yet it offers extreme simplicity with much more flexibility in its applications.

The Honeywell Electronic thermostat is merely a simple coil of wire with no moving parts—nothing to wear out. And see how other factors are simplified! Basic circuits are the same for all types of applications. Fewer control units are needed. A single thermostat, for example, can be used for both heating and cooling with automatic change-over from one situation to the other at any selected temperature level.

It means a simple, practical answer to many problems for which there has previously been no clear-cut solution. So watch Honeywell Electronic Control carefully. It's opening the way for new horizons in the industry. Minneapolis-Honeywell, Minneapolis 8, Minnesota. In Canada: Leaside, Toronto 17, Ontario.

SIMPLE IN OPERATION
FLEXIBLE IN APPLICATION
ACCURATE IN CONTROL
AND SUPERSENSITIVE



73 BRANCHES FROM COAST TO COAST WITH SUBSIDIARY COMPANIES IN: TORONTO • LONDON • STOCKHOLM • AMSTERDAM • BRUSSELS • ZURICH • MEXICO CITY

and AIR CONDITIONING • NOVEMBER, 1950

HENRY

*really gives you
something extra*

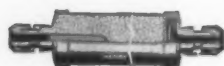
a few of many outstanding advantages



IN PACKLESS VALVES, still the only Balanced-Action valve on the market—no extra cost



IN STRAINERS, forged brass end caps with integral fittings, reinforced screen, large filtering area, distortion-proof clean-out flange



IN DRIERS, forged brass end caps with integral fittings, natural finish, Abso-Dry pressure sealed, dispersion tube and extra capacity



IN WING CAP VALVES, greater flow, bolted bonnet and self-aligning stem disc



IN RELIEF VALVES, diaphragm construction, positive controlled cushion reseating with relief capacity that meets latest code requirements



IN AMMONIA VALVES, compact and strong, self-aligning stem disc

**IN ALL HENRY PRODUCTS—ADVANCED
FIELD-PROVEN DESIGN AND CONSTRUCTION**

Sold by Leading Wholesalers

HENRY VALVE CO.



*Valves • Driers • Strainers • Control Devices and Accessories
for Refrigeration, Air Conditioning and Industrial Applications*

**MELROSE PARK, ILL. (CHICAGO SUBURB)
CABLE: HEVALCO, MELROSE PARK, ILLINOIS**

tioning and refrigeration business, so the Carrier group established their own independent company—Carrier Engineering Corp. Later, when the company combined engineering with the large-scale manufacture of air conditioning and refrigeration apparatus, the name was changed to its present form—Carrier Corp.

The Centrifugal Machine

One of Dr. Carrier's most important contributions to the science of air conditioning was his invention and design of the centrifugal refrigeration machine. It represented a tremendous advance over the reciprocating machine, particularly where large ton-nages of cooling were required.

Since the development of the first centrifugal, he and his associates have constantly improved its capacity and range of application. Capable of using a great number of safe and harmless refrigerants, it can produce temperatures well under 150 degrees below zero.

The centrifugal played a part in many of the long list of "Carrier firsts" in the air conditioning field. Carrier provided the first air conditioning not only in the printing and textile fields, but also made the first installations in paper mills, rubber, chemical, pharmaceutical, rayon, candy, aircraft, chewing gum, electrical and motion picture manufacturing plants. Equipment designed by Dr. Carrier went into the first air conditioned ship, railroad car, bus, theatre, hospital, library, brewery, dairy and department store. Carrier centrifugals also made possible the biggest air conditioning installations ever undertaken, including Radio City in New York and the Pentagon Building in Washington.

Personal Data

Dr. Carrier was born in Angola, N. Y., on Nov. 26, 1876. He was the descendant of an English political refugee, Thomas Carrier, who migrated to America upon the restoration of Charles II. He attended various district schools in Erie County, N. Y., Central High School in Buffalo, and was graduated from Cornell University in 1901.

Here's How It Works!



R. H. Luscombe (third from left) demonstrating refrigeration control functions to a typical group of servicemen following a recent Penn Switch educational meeting.

PENN PLANS NEW FALL SERIES OF MEETINGS

A new series of educational shows designed as a service to refrigeration engineers and service men began in Chicago on Sept. 12 and will travel throughout the north central and mid-west states, according to R. H. Luscombe, general sales manager of Penn Electric Switch Co.

This show was created to give a dramatic visual demonstration in the use, construction, installation and servicing of automatic controls. Included in the elaborate equipment are giant controls which actually operate, colored slides, and a "live" board illustrating an entire refrigeration system in operation. The system is ingeniously diagrammed on a large board with various colored lights to show the action of each function in the system.

Penn has had considerable experience in creating and staging educational meetings of this nature. Some 15 years ago, the company pioneered demonstration shows with the objective of improving service to the consumer by giving instruction aid to the service men. The nation-wide acclaim from the trade for Penn's educational efforts in the past has definitely proved the need for such meetings. On a similar tour of the eastern states last spring, attendance at the Penn meetings outstripped all estimates by 50 to 60%.

Although the current show is patterned after previous ones to some extent, it includes the latest current in-

formation and service helps, and is expected to be even more beneficial to the trade.

Meetings are being arranged and sponsored in each city by local jobbers of Penn controls. According to Luscombe, each meeting will give the most thorough demonstration of controls possible in a single evening. After the regular session, individual installation problems will be discussed.

At present the Penn "travelling" refrigeration control show was scheduled to appear in the following cities: Chicago on Sept. 12; Milwaukee on Sept. 15; Madison on Sept. 19; Oshkosh on Sept. 22; Duluth on Sept. 26; St. Paul-Minneapolis on Sept. 29; La Crosse on Oct. 3; Peoria on Oct. 6; Davenport on Oct. 10; Cedar Rapids on Oct. 13; Des Moines on Oct. 17; Sioux City on Oct. 20; Omaha on Oct. 24; Lincoln on Oct. 27; Wichita on Oct. 31; Kansas City on Nov. 3; Springfield on Nov. 7; St. Louis on Nov. 10; Evansville on Nov. 14; Indianapolis on Nov. 17.

DEAN GETS GOV'T ORDER

Dean Products, Inc. has just announced receipt of a substantial contract from the Quartermaster Dept., U. S. Army, for the supply of Dean freezer plates. This is but one of several important contracts awarded the firm in recent months.

**BUY FROM YOUR
REFRIGERATION WHOLESALE**

World-wide acceptance



Ranco Refrigeration Controls Giving Trouble-Free Service the World Over

In millions of trouble-free installations everywhere, Ranco Refrigeration Controls are proving their worth in both domestic and commercial applications.

Servicemen, especially, rely on Ranco when making any type refrigeration replacement—because they spend less time on the job, eliminate call-backs,

make more money! Moreover, Ranco offers a specific control for every type replacement.

Visit your Ranco wholesaler today. Save shopping around. You'll enjoy the advantage of selecting from the most complete line of exact and general replacements ever offered to the trade.



New Ranco Replacement Reference No. 1244

See this complete reference on your wholesaler's counter. Includes alphabetical listing of all refrigeration manufacturers, trade names, and the Ranco Replacement Control code number. Copies available only through Ranco wholesalers.

Ranco Inc.

COLUMBUS 1, OHIO

WORLD'S LARGEST MANUFACTURERS OF REFRIGERATION CONTROLS

THE SERVICE MAN'S DEPARTMENT

HERE'S HOW!

Edited by
Warren F. Farr

Make Customer Lists Do More Selling

Using lists of your present customers as a promotional tool to help you get new ones is hardly a novel idea, but there is a way you can make these lists do a better selling job for you.

The longest customer list in the world isn't worth the paper it's written on if your prospects won't read it. And there are few things which make duller reading than a closely spaced list of names.

If you want to get real results from your customer lists try brightening them up by including a brief and informally written description of each job listed. Type or set the name and location of each job in capital letters to make it stand out more prominently. Then follow this with an itemization of the equipment installed and a few descriptive sentences con-

*I do it
this way...*

QUITE often numbers on old broken or worn belts can be made legible by flowing clear refrigerant oil over the indistinct letters and numbers. The oil must not be rubbed in—just drop it on from the oil can. This method works especially well on Dayton belt numbers.

Norman Cramer, Superior, Wis.

cerning the nature of the application.

Above all, don't crowd these listings. It's far better to select a smaller number of your outstanding jobs for this kind of a tabulation, and then allow plenty of space around each installation listed, than it is to try to include every job you've ever done and jam them one on top of the other.

What To Do For Slow-Running Compressors

If the compressor on your customer's water cooler is running too slowly, it may be that the capacitor is shorted. If this is the case, the capacitor should be replaced.

Another possible cause of this difficulty is low voltage. Check voltage at the meter. If this is OK, have the customer install new wiring to the water cooler.

Basic Points in Air Conditioner Servicing

On servicing air conditioners, it is well to bear in mind some of the basic service techniques when a serviceman checks an air conditioner.

There have been numerous cases where complete units have been changed due to the air screens being clogged and the filters clogged. When checking an air conditioner for

efficiency of operation make sure the first things you check are the air flow passages to be sure that there are no restrictions in them, that the insulation has not fallen down obstructing the air passage way, and that all air screens are clean and free and that the filters are not clogged.

It is also advisable to follow closely the approximate wattage readings which are given in the manufacturer's service manual in checking air conditioners, because high wattage draw after the air conditioner has been operating will show up and one of the most common causes of this is a restriction in the air flow paths.

If you will follow these basic servicing procedures the next time you are called to service an air condi-

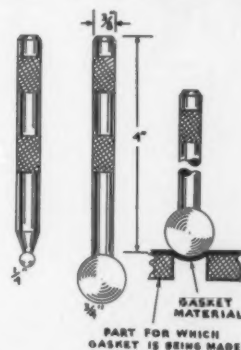
*I do it
this way...*



FOR some time we have been having trouble with fan pulley key wrenches. These key wrenches are unhandy to use. We solved this problem by drilling a hole in a piece of hex steel, inserting and soldering the key wrench in the piece of bar steel and also adding another cross-piece in the other end of the piece of bar steel. This gives us a handy wrench for removing set screws from fan pulleys, and makes what used to be a tough job much easier. The diagram explains what the finished tool looks like.

Daniel Eisenberg, New York City

*I do it
this way...*



I HAVE found, when making gaskets, that ball bearings of various sizes do a very neat job in helping you to get the holes sized correctly.

As the sketches show, you will note that I have silver soldered 4-inch lengths of $\frac{3}{8}$ -inch rod to the balls. The rest should be easily understood.

A. R. La Rue, Miami Springs, Fla.



REPAIR TERMINAL LEAKS FASTER EASIER

New DELAVAN REPLACEMENT TERMINALS

Seal terminal leaks in hermetic units by installing Delavan Replacement Terminals. Just attach to the original terminal post.

Write for free bulletin

DELAVAN
MANUFACTURING CO.

3009 SIXTH AVENUE
DES MOINES 13, IOWA

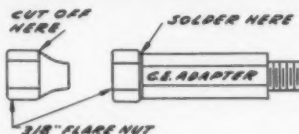


IT'S A MONEY-
MAKING CHORE
TO CHECK
THE GASKET
ON THE DOOR

JARROW PRODUCTS
420 N. LA SALLE ST., CHICAGO 10, ILLINOIS

tioner, a lot of valuable time may be saved and the servicing can be accomplished very quickly to the customer's satisfaction.

*I do it
this way...*



IN the later models of the Frigidaire "Meter Miser" unit the evacuation and charging of this unit was done through a special fitting located off the suction line strainer at the unit. The hermetic charging and testing kits on the market do not have an adapter which fits this type of connection and none are available from the Frigidaire factory.

To overcome this handicap, here is a method of successfully charging this unit which I have developed.

Take an ordinary 3/8-inch flare nut and cut off the neck close to the body of the nut. Soft solder the nut to the G-E adapter supplied with your hermetic valve kit. This adapter is made to fit the G-E Model CGI-A16.

The purge screw on the special unit fitting has a 3/8-inch hexagon head and, as none of the adapter wrenches in the hermetic kit fit this, it is a simple matter to cut a screw driver slot in the hexagon head with a hacksaw. Your newly made adapter is now ready to put on.

Porter F. Steffey,
Childress, Tex.

Bribe Your Servicemen To Drive More Carefully

If you operate a fleet of trucks in your contracting or service work, you no doubt know all too well that accidents cost you money. Even though your vehicles are insured, there's always the inconvenience, the lost time, and similar factors for which you never will be compensated.

Some contractors have found that offering safe driving incentives to their men in the form of points toward merchandise prizes has materially helped in reducing their accident rates.

Several such prize plans are available from firms specializing in that

type of business, and a common practice is for a contractor to award 500 to 1000 points for each year in which a driver manages to avoid a chargeable accident.

Tape to the Rescue

A roll of scotch cellophane tape is a handy thing to carry in your tool kit. You'll find a variety of uses for it in your everyday work.

If you can't get your hand to a bolt or nut to install it, try placing it in a box or open-end wrench and taping the bottom of the wrench to hold it in place. The tape will hold the bolt or nut secure at any angle.

If you have to apply pressure to start the bolt through the hole, tape it with several rounds for additional strength. You'll find this works a lot better than most other types of "stickum" (chewing gum, for example)—and you don't have a clean-up job to do later.

*I do it
this way...*

WE RECENTLY had a rash of blower motor trouble, which prompts me to pass on to you a tip regarding the Redmond Type "R" micromotor.

If the coil is equipped with this type of blower motor, and the complaint is "cabinet temperature too warm," check blower speed. Gummy bearings can slow these motors considerably. Many Recold coils of the "Hide-Away" line use the Type "R" motor, in a vertical position. Mounted so, the weight of the rotor, and the pull of the fan, wear away the inside face of the bearing. These bearings have an outside taper, each end. Therefore, as the face wears, there is more bearing surface, more friction, and slower speed.

To make these little motors good as new, when the front bearing has worn the inside face, take the motor apart, remove the two screws holding the self-aligning bearing. Wash the felt ring in solvent, remove any gum present, then re-assemble, with the bearing itself turned end to end.

You can reverse these motors (if that should ever be necessary). To do this, remove the oil shields from the endbells. Then remove the endbells, turn the rotor end to end, and re-assemble. Then install the oil shields.

H. L. Myers, Nestor, Calif.

OPPORTUNITIES

(Classified Advertising)

Rates: for "Positions Wanted," \$4.00 minimum, limit 25 words. For all other classifications, \$4.50 minimum for 25 words or under, each additional word 15c; boldface type or all capitals, \$7.50 minimum for 25 words or under, each additional word 20c. Box addresses count as five words, other addresses by actual word count. All advertisements in this section are payable in advance.

HELP WANTED

DISTRICT SALES MANAGER. A leading commercial refrigerator manufacturer has opening for an experienced and aggressive sales manager for its West Coast territory. Must be versed in appointing and working with dealers. In replying, give age, experience, education, references and remuneration expected. All replies kept in strict confidence. Our employees know about this advertisement. Box 11250.

JOB WANTED

A-1 PARTS AND SERVICE MANAGER WITH SALES ABILITY DESIRES POSITION WITH REFRIGERATION MANUFACTURER OR DISTRIBUTOR. SOME ENGINEERING. FREE TO TRAVEL. BOX 11150.

FOR SALE

Compressor. 7½ HP York evaporative type at less than distributor's cost. Bimel Company, Cincinnati, Ohio.

ECA REPRESENTATIVES TOUR YORK PLANT

As part of the Economic Cooperation Administration's program to show modernized American Indus-

trial methods and procedures to Marshall Plan nations, approximately 50 persons representing 12 foreign nations toured the York Corp. plants recently and were told the important part that air conditioning and refrigeration plays in American life.

Countries represented were: Norway, Sweden, Denmark, Iceland, Ireland, United Kingdom, Netherlands, Belgium, France, Germany, Australia, Switzerland and Italy. The visitors were executives, technicians, research and operative personnel engaged in handling, transportation and storage of perishable foods.

LETTERS

(Continued from page 10)

on display at the Canadian National Exhibition. They are made in Canada as well as in the United States by the Taymouth Industries Ltd. The folder gives the U. S. plant in New Jersey.

As far as I have learned, the mechanism is Swiss and was first made in Scotland. A few dealers are carrying them here in New York and they are quite compact. The unit sells in New York for \$129.50 plus city sales tax of 2%. It uses ammonia absorption principle.

I thought you and maybe some other readers, might in the future be interested. That is why I sent the folder for your files. —Leslie A. Scott, New York 32, N. Y.

NEW HIP-POCKET TOOL

MAKES 36 JOBS EASIER

\$49.50

Complete with leather case and voltage test lead.



AMPROBE

snap-on volt-ammeter

**reads current without
breaking circuit or
touching wires!**

Look what you can do with this one pocket-size instrument: Determine load conditions without having to shut down equipment. Spot motor overloads and underloads. Diagnose trouble calls faster, under actual load. Measure voltage at motor terminals. Set overload relays. Load balancing, etc.

Here's how the AMPROBE works:

No need to shut down equipment to make the cumbersome ammeter connections. The Amprobe measures current *without touching wires*. You just press trigger to open jaws; then release to close around one of the wires. That's all! For voltage readings, flip the switch and plug in test leads.

SO COMPACT, IT FITS IN YOUR POCKET

- ½ the usual size — only 7"!
- ½ the usual weight — only 14 oz.!
- ½ the usual price — only \$49.50!

MODEL A-6

Measures 5 current ranges and 2 A.C. voltage ranges!
Amps: 10/25/50/100/250 Volts: 150/600
(2 other popular models also available)

Send for 16-page manual: "How to Make Your Job Easier With An AMPROBE". Pyramid Instrument Corp., 49 Howard Street, N. Y. 13, N. Y. (Export Dept.: Morhan Exporting Corp., 458 Broadway, N. Y. 13, Cable: Morhanex).

AMPROBE

A PYRAMID INSTRUMENT

See it today at the better electrical distributor

NO MORE FREEZE-UPS

of expansion valves or capillary tubes!

ICE-X works like magic

SERVICE MEN SAY: "ICE-X IS GREAT!"



When ice forms in expansion valves or capillary tubes, ICE-X is a sure remedy . . . ICE-X is non-corrosive —harmless to parts. An ice-eliminator that can't be beat for Freon, Carrene, or Methyl Chloride systems . . . Order from your jobber. If no jobber, order direct.



Service doesn't falter
when it comes from Harry Alter

Jobbers: Ask for special offer!

The HARRY ALTER CO.

Exclusive
ICE-X
Distributor

1728 S. Michigan Ave. Chicago 16, Illinois



"Prest-O-Lite" 09P94 Outfit...\$22.50

Complete Equipment for SOLDERING HEATING BRAZING AND LEAK DETECTION

Compact, lightweight, and easy to use even in close quarters, the "Prest-O-Lite" 09P94 Outfit is the ideal kit for installing and servicing refrigeration systems. Using "Prest-O-Lite" acetylene from handy small tanks, it works perfectly indoors or out, regardless of drafts or weather. It lights instantly at full heat...burns steadily without smoke or fumes.

Three interchangeable stems give a wide range of precision-controlled flame sizes for faster and better soldering, heating, and brazing. A fourth stem, easily assembled to the same handle, provides a quick and sure device for locating leaks of non-combustible halide refrigerant gases, such as Freon and Carrene.

• Ask your "Prest-O-Lite" Jobber or write us for more information. The Linde Air Products Company, 30 E. 42nd St., New York 17, N. Y. In Canada: Dominion Oxygen Company, Limited, Toronto.

The term "Prest-O-Lite" is a registered trade-mark of The Linde Air Products Company, a Unit of Union Carbide and Carbon Corporation.

— Order from —
your local Jobber

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THEY ALL BOOST PROFITS

Unexcelled replacement parts and hermetic servicing equipment which help you to diagnose compressor troubles quickly and easily. . . . Eliminate costly call-back service. . . . Insure customer satisfaction.



CYLINDER VANES ROTORS

Matched set of tool hardened replacement parts for all Coldspot compressors having 15/32 shafts. Available in sizes 1", 1 1/4" and 1 1/2". Prices for complete sets. Lots of 1—\$13.50 ea. Lots of 3—\$12.83 ea.



CHECK VALVES

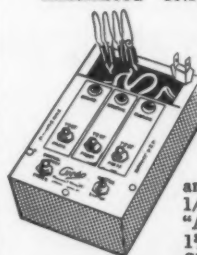
Job proved Coldspot replacement check valves. Price—\$2.00 ea. Lots of 10—\$1.80 ea.

BELLOWS SEAL

Outstanding bellows seal replacement unit for Coldspot having 15/32 shaft. A complete unit of siphon bellows balanced seal and steel coil spring. Price—\$3.00 ea. Lots of 10—\$2.85 Lots of 50—\$2.70



HERMETIC UNIT ANALYZER



"Annie", our hermetic unit analyzer will quickly and positively indicate the nature of any defects in the electrical system.

"Annie" is designed to check and start units up to 1/3 H.P. inclusive. "Annie" weighs only 1 1/4 lbs. Size 3"x5"x8". Price \$15.00

TAPALINE HERMETIC GAUGE PORT

An easy to install permanent gauge port on hermetically sealed units. Available in 3 sizes to fit 1/4"—5/16"—3/8" tubing. (Patent applied for.) Price \$1.25 ea.



For service on your needs order from your dealer or write direct.

Your free copy giving complete details is available, write today for bulletin CR-1.

**MECHANICAL REFRIGERATION
ENTERPRISES**

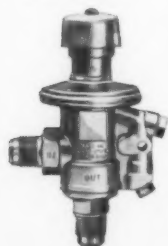
DEPT. 36 5032 LANKERSHIM BLVD.
NORTH HOLLYWOOD, CALIF.



**Accurate
Temperature Control
for all sections of
your Soda Fountain with**

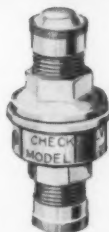
DEPENDABLE **Refrigeration Valves**

Here's the simple way to accurately control the various temperature sections of soda fountains and similar units.



On the HIGHER temperature evaporators, install an A-P Model 235-S Evaporator Pressure Regulating Valve in the suction line to provide close and accurate control of pressures.

With exclusive pressure-graduated scale on collar, A-P Model 235-S permits instant adjustment from 0" to 40 lbs. Capacity to 1/2 ton freon.



Then, in the suction line of the COLDER evaporator, to prevent backflow of refrigerant from the warmer evaporator during the off-cycle, install the A-P Model 234 Check Valve.

Compact, simple in construction, A-P Model 234 Check Valve provides positive seal-off with minimum pressure drop.

Protect the efficiency of all your multiple-temperature systems with this A-P Valve Combination. Your Refrigeration Wholesaler stocks A-P Check Valves and Evaporator Pressure Regulating Valves. Use them — to your profit. Write for bulletins and new A-P Condensed Catalog.

AUTOMATIC PRODUCTS-COMPANY

2486 North Thirty-Second Street • Milwaukee 45, Wisconsin.
Export Department, 13 East 40th Street, New York 16, N. Y.



DEPENDABLE *Refrigeration Valves*

STOCKED AND SOLD BY GOOD REFRIGERATION WHOLESALERS EVERYWHERE . . . RECOMMENDED AND INSTALLED BY LEADING REFRIGERATION SERVICE ENGINEERS

are businessmen

COLD-

BLOODED?



OF COURSE NOT! Literally, their normal body temperature is 98.6—same as laborers, engineers or any other group of people. And, figuratively, they're no more, or no less, cold-blooded—as a group.

We all know unreasonable generalizations can be dangerously false. Common sense and on-the-job experience show us the value of dealing specifically with ideas, problems—and *people*.

Let's not make the big—and costly—mistake, then, of generalizing on religious or racial groups. Adopt and *carry out* these common sense principles:

1. Accept—or reject—people on *their individual worth*.
2. Don't listen to or spread rumors against a race or a religion.
3. Speak up, wherever we are, *against* prejudice. Work for understanding.



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1240 ONTARIO STREET

CLEVELAND 13, OHIO

